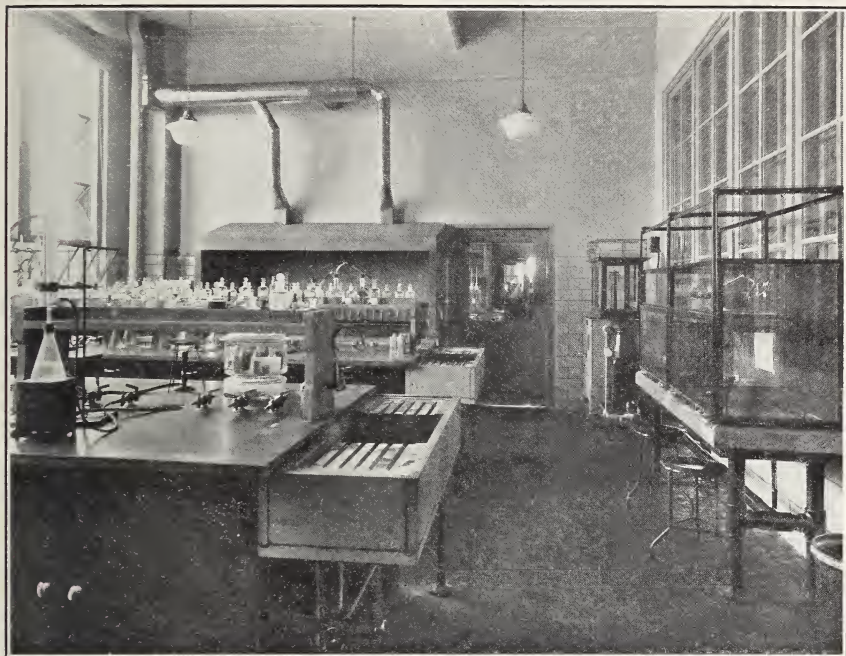


ANNUAL REPORT
OF THE
PUBLIC PRINTER

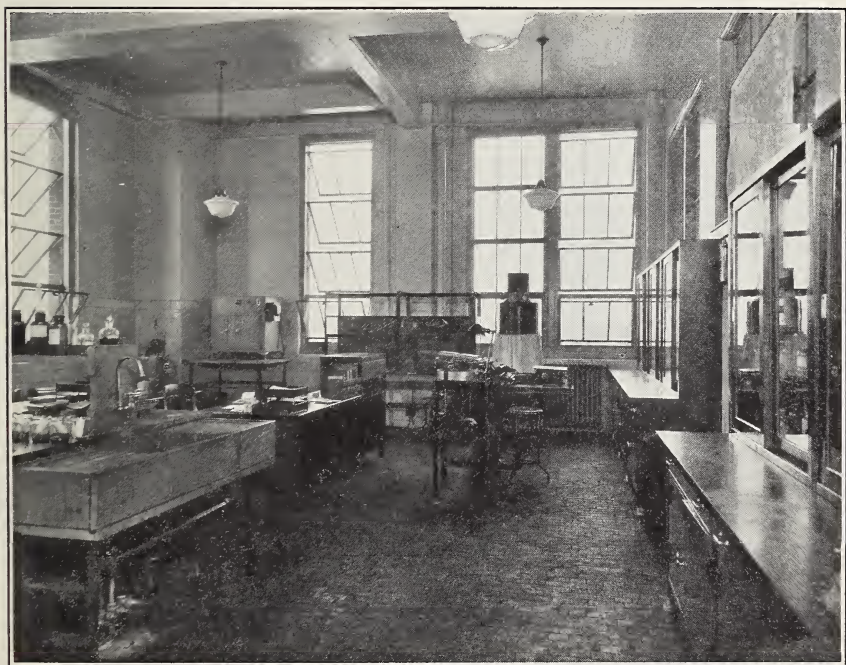
1931

UNITED STATES GOVERNMENT PRINTING OFFICE

UNITED STATES GOVERNMENT PRINTING OFFICE



LABORATORY FOR CHEMICAL ANALYSIS OF PAPER



GENERAL RESEARCH LABORATORY

UNITED STATES GOVERNMENT PRINTING OFFICE



PAPER TESTING ROOM WITH CONTROLLED HUMIDITY AND TEMPERATURE



TEXTILE TESTING ROOM WITH CONTROLLED HUMIDITY AND TEMPERATURE

UNITED STATES GOVERNMENT PRINTING OFFICE

GEORGE H. CARTER, Public Printer

ANNUAL REPORT
OF THE
PUBLIC PRINTER

1931



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1932

UNITED STATES GOVERNMENT PRINTING OFFICE

Public Printer.—GEORGE H. CARTER, Iowa

Deputy Public Printer.—JOHN GREENE, Massachusetts.

Production Manager.—ELLWOOD S. MOORHEAD, Pennsylvania.

Assistant to Production Manager.—WILLIAM D. SKEEN, Pennsylvania.

Assistant to the Public Printer.—MISS MARY A. TATE, Tennessee.

Chief Clerk.—HENRY H. WRIGHT, New York.

Assistant Chief Clerk.—ERNEST C. MELLOR, Maryland.

Superintendent of Accounts and Budget Officer.—JAMES K. WALLACE, Ohio.

Assistant Superintendent of Accounts.—J. THOMAS FORD, Nevada.

Purchasing Agent.—ERNEST E. EMERSON, Maryland.

Assistant Purchasing Agent.—WILLIAM J. CASSIDAY, District of Columbia.

Technical Director.—BYRON L. WEHMHOF, Washington.

Disbursing Clerk.—EDWARD J. WILVER, Pennsylvania.

Deputy Disbursing Clerk.—J. BASIL PERKINS, Minnesota.

Medical and Sanitary Director.—DR. DANIEL P. BUSH, Nebraska.

Assistant Medical and Sanitary Director.—DR. CHARLES P. WAITE, Pennsylvania.

Superintendent of Documents.—ALTON P. TISDEL, Ohio.

Assistant Superintendent of Documents.—MISS JOSEPHINE G. ADAMS, District of Columbia.

Superintendent of Planning.—WILLIAM A. MITCHELL, North Carolina.

Assistant Superintendent of Planning.—LOUIS C. VOGT, Florida.

Superintendent of Printing.—HERMANN B. BARNHART, Indiana.

Assistant Superintendent of Printing.—MAURICE H. PHILLIPS, Ohio.

Foreman Linotype Section.—CHARLES H. VAN HOOK, New Jersey.

Foreman Monotype Section.—WILL H. CHASE, Maryland.

Foreman Proof Section.—MARION E. BULLOCK, Maryland.

Foreman Patents Section.—RAYMOND H. LECRAW, Rhode Island.

Foreman Hand Section.—HUGH REID, Wisconsin.

Foreman Job Section.—ALLAN C. CLOUGH, New Hampshire.

Foreman Library Printing Branch.—JAMES H. HESLET, Kansas.

Chief Type Machinist.—DANIEL L. LIDDLE, Michigan.

Superintendent of Presswork.—BERT E. BAIR, Michigan.

Assistant Superintendent of Presswork.—DANIEL BECKWITH, New Hampshire.

Foreman Main Press Section.—DANIEL I. LEANE, New York.

Foreman Job Press Section.—JAMES E. VEATCH, New York.

Foreman Postal Card Section.—JOSEPH A. FENTON, Michigan.

Foreman Money Order Section.—JOHN A. MASSEY, Jr., Georgia.

Superintendent of Binding.—MARTIN R. SPEELMAN, Missouri.

Assistant Superintendent of Binding (Book Section).—JOHN A. PATTERSON, New York.

Foreman Pamphlet Section.—RALPH W. HOWARD, District of Columbia.

Foreman Blank Section.—WALTER H. OLIVER, Maine.

Foreman Library Binding Branch.—GEORGE R. ERLER, Maryland.

Superintendent of Platemaking.—EDWARD G. WHALL, Massachusetts.

Assistant Superintendent of Platemaking.—EDWARD A. KERR, Massachusetts.

Foreman Finishing Section.—CHARLES H. HANSON, Pennsylvania.

Foreman Molding Section.—THOMAS H. MUMFORD, Jr., Pennsylvania.

Foreman Photo-Engraving Section.—EUGENE F. BURR, Missouri.

Night Production Manager.—EDWARD A. HUSE, Massachusetts.

Assistant Night Production Manager.—JOHN M. WILSON, Kansas.

Assistant Superintendent of Presswork, night.—CHARLES C. GASTROCK, Pennsylvania.

Foreman Linotype Section, night.—HARRY L. MURRAY, Pennsylvania.

Foreman Monotype Section, night.—WILLIAM A. MORRIS, Missouri.

Foreman Proof Section, night.—HARRY B. GOODRELL, Iowa.

Foreman Hand Section, night.—GEORGE O. ATKINSON, Massachusetts.

Assistant Foreman Pamphlet Section, night.—ALBERT LINDSTROM, Missouri.

Assistant Foreman Platemaking, night.—HERMAN C. GROTH, Pennsylvania.

Superintendent of Construction and Maintenance.—ALFRED E. HANSON, Massachusetts.

Chief Carpenter.—ABRAAM B. BATTON, District of Columbia.

Chief Machinist.—MICHAEL J. MCINERNEY, New York.

Chief Electrician.—EDWARD H. BRIAN, District of Columbia.

Chief Engineer.—WALTER A. BROWNE, New Hampshire.

Chief Pipefitter.—OVLUP H. GEORGE, New York.

Construction Foreman.—EDWARD M. LILLEY, Maryland.

Foreman Sanitary Section.—JOSEPH L. MAY, Virginia.

Storekeeper and Traffic Manager.—WILLIAM H. KERVIN, New York.

Assistant Storekeeper.—JOHN F. HYSAN, Maryland.

Chief Instructor of Apprentices.—BURR G. WILLIAMS, Iowa.

Assistant Chief Instructor.—FRANK M. ROLLER, Pennsylvania.

Assistant Chief Instructor.—NATHANIEL G. WATTS, Missouri.

Congressional Record Clerk (Capitol).—WILLIAM A. SMITH, District of Columbia.

Chief of Delivery.—THURSTON G. BROWN, Maryland.

Captain of Guards.—THOMAS L. UNDERWOOD, Indiana.

ANNUAL REPORT OF THE PUBLIC PRINTER

UNITED STATES GOVERNMENT PRINTING OFFICE,
OFFICE OF THE PUBLIC PRINTER,
Washington, D. C., January 20, 1932.

To the Congress of the United States:

In compliance with law, I have the honor to submit the following report on the work of the Government Printing Office for the fiscal year ended June 30, 1931, and also for the last half of the calendar year 1931.

More orders for printing and binding, shorter hours of labor due to the Saturday half-holiday law and a drastic reduction of overtime work, along with expanding activities due to occupancy of a large extension of the plant, have made necessary a considerable increase in the regular work forces of the Government Printing Office.

During the fiscal year 1931 there were 938 appointments and 463 separations, including 183 retirements on annuities. The number of employees on the rolls June 30, 1931, was 4,903, an increase of 471 for the fiscal year.

INCREASE IN NUMBER OF EMPLOYEES

The total number of employees on the rolls December 31, 1931, was 5,043, an increase of 216 for the year, 635 more than two years ago, and 852 more than four years ago. The present enrollment is 264 less than the greatest number ever employed in the Government Printing Office, which was during the World War.

That there has been plenty of work for the augmented force of employees is evidenced by their completed products for the fiscal year 1931, amounting to \$14,546,440.75, an increase of \$449,920.50 over the production in the preceding fiscal year.

During the eleven fiscal years from 1921 to 1931, inclusive, the Public Printer has returned to the public Treasury the sum of \$10,837,647.24 in unexpended funds and miscellaneous receipts. Of this amount, \$7,960,291.84 was available for expenditures but not used by the Public Printer. The unexpendable miscellaneous receipts of \$2,877,355.40 came from the sales of public documents and waste materials. All the pledges to the Director of the Budget for the saving of reserved funds, amounting to \$233,764 in the last four years, have been fulfilled.

PRODUCTION AND EMPLOYMENT

The production total for the fiscal year 1931 was \$2,370,077.89 more than that for the fiscal year 1921, an 18 per cent increase in 10 years. During the same period the number of employees increased 6 per cent.

The principal items of production increases in the fiscal year 1931 included the output of typesetting machines, amounting to 2,507,813,400 ems of type, or 34,246,300 more ems than were set in the fiscal year 1930, and 286,198,200 more than in 1921. The press-work in 1931 totaled 2,393,483,181 chargeable impressions, an increase of 28,534,768 over the preceding year and 75,838,732 more impressions than were printed in 1921.

All kinds of printed matter produced by the Government Printing Office in the fiscal year 1931 totaled 3,409,447,250 copies, including 3,129,202,656 blanks, notices, circulars, and cards. Of letterheads, noteheads, and envelopes there were printed 149,118,805 copies, an increase of 31,066,139 for the year. Embossed letterheads and envelopes for departmental use totaled 949,460, a decrease of 669,390 from the embossing done in 1930. Members of Congress did not order any stationery embossed by the Government Printing Office during the year.

GREATER NUMBER OF PUBLICATIONS

Publications printed in the fiscal year 1931 for all branches of the Government service totaled 88,524,736 copies, an increase of 426,497 over the number printed in 1930. Of the 1931 copies, 1,247,587 were bound, an increase of 201,600 over the preceding fiscal year.

The number of jackets (job specifications) written during the fiscal year 1931 totaled 64,938, an increase of 2,635 over the preceding year and 8,417 more than in 1921.

These increases are continuing during the present fiscal year, as indicated by the records for the first six months since July 1, 1931, which show a gain of 129,706,800 ems of type set over the corresponding months of the preceding fiscal year. Actual press impressions, which increased 2,237,076 in the fiscal year ended June 30, 1931, showed a further gain of 10,228,222 impressions during the first six months of the fiscal year beginning July 1, 1931. Numerous bindery operations also made good gains during the first six months of the present fiscal year.

In addition to the increased force necessary to handle the greater volume of work, the rigid curtailment of overtime has necessitated the services of many more employees to offset the shorter hours of labor. There were 420,928 less hours of overtime, Sunday, and holiday work in the fiscal year 1931 than in 1930, when the extra

hours of employment totaled 478,557, as compared with only 57,629 hours of overtime in the fiscal year 1931. Consequently the expenditures for that purpose in 1931 were \$496,587.99 less than in 1930.

There has been further reduction of overtime, Sunday, and holiday work during the present fiscal year, the number of hours of such employment for the first six months being 6,713 as compared with 31,873 extra hours during the corresponding months of the fiscal year 1931, with a further decrease of \$30,971 in overtime expenditures.

Thus, during the last 18 months, there has been a decrease of approximately \$527,560 in expenditures for overtime work. This sum has been available for the employment of an additional force to do the work which formerly had to be handled with overtime, Sunday, and holiday labor.

AVERAGE ANNUAL EARNINGS DECREASE

The great reduction of overtime work has, of course, decreased the average annual earnings of employees, although there has been no reduction in the rates of wages during the year. The average earnings per employee during the fiscal year 1931 was \$2,121.42, a decrease of \$116.17, or 5 per cent less than for the preceding fiscal year.

This decrease in average earnings may properly be regarded as a contribution of \$116.17 each from the employees of the Government Printing Office for the employment of other persons to assist them in the work they formerly had to do in overtime.

Notwithstanding the decreased average earnings in the fiscal year 1931 on account of the overtime reduction, the average earnings per employee was \$449.61, or 27 per cent, more than for the fiscal year 1921. The average pay for Printing Division employees in 1921 was \$2,025.99, and in 1931, \$2,582.98, an increase of \$556.99.

GLAD TO SHARE WORK WITH OTHERS

It is gratifying to note that the decreased average earnings for 1931 were accepted willingly by employees who were not only glad to be relieved of the longer hours of labor but were happy also to share their jobs with the additional employees required to produce in the regular 8-hour day the work that formerly necessitated hours of daily overtime.

Employees of the Government Printing Office have also responded splendidly to every appeal for assistance to the less fortunate. Their contributions to the Washington community chest for 1931 amounted to \$23,395.70, well exceeding their quota for the year.

Again, in the Red Cross enrollment for 1932 the Government Printing Office went over the top with a total subscription of \$2,520.01,

exceeding in employee percentage every other Government establishment in Washington.

To the Washington community chest and unemployment fund for 1932 the employees of the Government Printing Office also liberally contributed \$50,014.19.

In addition, many thousands of dollars have been contributed to unemployment relief by employees through their own trade and social organizations and to charities in their home States and elsewhere.

FIVE-DAY WEEK AND WAGES

Another cause for increasing the force of employees during the fiscal year 1931 was the enactment of the Saturday half-holiday law, which became effective on March 1, 1931. The new law granted to each employee a total of 17 days additional holiday time with full pay. To carry on the same amount of work as previously done on Saturday afternoons requires approximately 220 additional employees. The increased annual expense on this account alone is approximately \$500,000.

However, the extra cost of the year-round half holiday has been offset somewhat by the increased efficiency and better morale of the employees due to the longer periods of relaxation from their weekly labors. For this reason, and in order to provide work for more people, the Public Printer earnestly recommends that Congress establish a 5-day week throughout the year.

RESOLUTION OF TYPOGRAPHICAL UNION

The International Typographical Union at its convention in Boston on September 16, 1931, unanimously adopted the following resolution thanking the Public Printer for his help in securing the Saturday half holiday for Government workers and his continued cooperation in the effort to obtain a 5-day work week:

Whereas it is the universal opinion of labor leaders and far-sighted business men that the adoption of the 5-day week is necessary and inevitable, and

Whereas workers in the Government Office at Washington, D. C., can not receive the benefits of this highly desirable condition except through legislation of the Congress of the United States, and

Whereas Public Printer George H. Carter has placed himself on record as favoring the 5-day week for the Government Printing Office, and

Whereas it is our belief that our Government should lead the way in the inauguration of this relief measure to be sincere in the statements made by numerous statesmen, including the President of the United States, Herbert Hoover: Therefore be it

Resolved, That the International Typographical Union in convention assembled at Boston does hereby indorse the efforts of Columbia Typographical Union, No. 101, and committees of the Government Printing Office in seeking this legislation and directs the executive council to lend all possible assistance to the end

that the 5-day week may become a reality at the coming session of Congress; and be it further

Resolved, That this convention also indorses and extends thanks to the Public Printer, George H. Carter, for his help in securing the 44-hour week and his continued cooperation with the committees in seeking a further reduction in hours without loss of pay.

SATURDAY HALF HOLIDAY APPRECIATED

Among other expressions in appreciation of the Public Printer's indorsement of the Saturday half-holiday legislation are the following:

Telegram from Mr. Charles P. Howard, president of the International Typographical Union, dated Indianapolis, March 3, 1931:

Am advised Congress has enacted and President affixed his signature to Saturday half-holiday bill affecting members of International Typographical Union employed in Government Printing Office. I desire to express appreciation for your sympathetic cooperation and support. This action recognizes principle our Government should be model employer.

Letter from Mr. Clyde M. Mills, president of Columbia Typographical Union, No. 101, Washington, D. C., dated March 21, 1931:

Columbia Typographical Union, No. 101, at the March meeting, unanimously indorsed a resolution expressing sincere appreciation for your favorable consideration of the problems of the committee of the Government Printing Office working for the half-holiday bill.

Not only do we appreciate your efforts for the half-holiday bill but for your expressions favoring the 5-day week. We feel sure that with your cooperation the campaign for the 5-day week will meet with success.

BOOKBINDERS THANK PUBLIC PRINTER

Letter from Mr. Felix J. Belair, president, and Mr. John J. Renals, secretary, of the Journeymen Bookbinders' Union of the District of Columbia, dated March 16, 1931:

At the meeting of local union No. 4, International Brotherhood of Bookbinders, held on Wednesday, March 11, 1931, a resolution was unanimously adopted expressing the sincere thanks of our members for the assistance rendered by you in the passing of the Jones bill, providing for a 5½-day week for Federal employees.

To you, Mr. Carter, we feel deeply grateful, and we are directed to convey to you the sincere thanks and appreciation of our members.

Letter from Mr. Charles F. Markey, president, and Mr. John A. McLean, secretary-treasurer, of the Electrotpe Molders and Finishers Union, No. 17, Washington, D. C., dated March 18, 1931:

At our regular March meeting a resolution was unanimously passed thanking you for your very valuable assistance in helping the employees of the Government obtain the Saturday half day, which has recently become a law.

This half day all year means so much to your employees in the way of healthful recreation and advancement that it is hard to find words in which to express our thanks. We do take this opportunity, however, to express our appreciation of your assistance, and for your interest in the welfare of your employees.

The occupation of the new G Street building extension, adding 173,500 square feet of floor space, also required additional employees for the enlarged activities of several divisions which previously did not have sufficient room to carry on their work. The additional facilities were made available principally to the Division of Construction and Maintenance for its numerous workshops; the Division of Public Documents for its priceless library and rapidly increasing sales of Government publications; the Presswork and Platemaking Divisions for additional machinery and equipment; the Division of Tests and Technical Control for its growing activities, including the production of inks, press rollers, and bindery glues; the Stores Division for its immense stock of materials and supplies, and the Accounts Division for its extensive files; all of which are now properly safeguarded in fireproof rooms with all-metal equipment.

PERMANENT FORCE OF 5,000 EMPLOYEES

All of the foregoing factors contributed materially toward sustaining the estimate in the Public Printer's Report for 1930 that the increasing work and shorter hours of employment in the Government Printing Office would require a force of approximately 4,982 employees during the fiscal year 1931. From present indications, a permanent enrollment of about 5,000 employees will be needed to carry on the regular work of the Government Printing Office for the ensuing year.

Wages and salaries paid the daily average of 4,759 employees on the rolls of the Government Printing Office during the fiscal year 1931 amounted to \$10,095,824.42, an increase of \$348,887.54 over the preceding year, which had an average of 403 fewer employees.

The 1931 pay roll exceeded that for 1921 by \$2,592,730.53, or 34½ per cent more. The average number of employees in 1921 was 271 less than in 1931. As before stated, the average wage per employee in 1931 was \$449.61, or 27 per cent, more than the average in 1921.

WAGE INCREASE FOR THE 10-YEAR PERIOD

For the 10-year period 1922-1931 the average wage was \$1,967.82, or \$675.27 more than for the 10-year period 1912-1921.

The increase of wages and salaries in recent years was due to the operation of the Kiess Wage Act of 1924, which applies to all but 181 employees in the office of the Superintendent of Documents whose salaries are subject to the Classification Act.

On recommendation by the Public Printer, Congress specifically provided in the Welch Act of 1928 that employees of the Government Printing Office, whose rates of pay are set under authority of the Kiess Act by collective bargaining with the Public Printer and

arbitration with the Joint Committee on Printing, shall not be subject to the Classification Act relating to other Government employees. The annual appropriation acts also provide that the compensation of employees paid by the hour in the office of the Superintendent of Documents shall be subject to the Kiess Act instead of the Classification Act.

None of the Government Printing Office employees should be restored to the jurisdiction of the Classification Board, which has little practical knowledge of industrial wage problems.

The Public Printer is fully in accord with the action of the American Federation of Labor in opposing a proposal to include Government skilled trades and related occupations in new legislation for final determination of their wages by a personnel classification board. Such a change would seriously disrupt the organization and operation of this office and serve no good purpose.

WAGE AND SALARY CUT OPPOSED

The Public Printer is also firmly of the opinion that wages and salaries in the Government Printing Office ought not to be reduced at this time. Any decrease in the present rates of pay would result in a corresponding loss to the Government by lessening the efficiency and morale of the most energetic organization in the Federal service.

Many of the employees of the Government Printing Office remained in its service during the World War period without any material increase of pay for the long and arduous hours of essential war work they chose to do for the Government instead of yielding to the allurements of higher war-time wages elsewhere. There are also 870 veterans now employed in the Government Printing Office who likewise served the Government during the World War without thought of special reward.

UNFAIR TO STOP BELATED REWARD

These faithful and loyal employees have now come to enjoy a fair rate of compensation from the Government they served so well during the war, and it would be grossly unfair to take from them the belated reward for their devoted services to the country during the war.

In accord with the Public Printer's support of present wage standards, the Joint Committee on Printing recently adopted his recommendation that the committee reserve the right to revoke any Government contract for paper made by workmen whose wages are reduced during the contract year. That the provision may be of benefit to a considerable number of paper-mill workers is shown by the annual requirements of the Government Printing Office for

approximately 54,000,000 pounds of paper. The actual expenditure for paper bought by the Government Printing Office during the fiscal year 1931 was \$2,850,320.46.

In addition, the Government Printing Office spent for other materials purchased in the fiscal year 1931 the sum of \$2,007,643.10, including \$299,472.54 for new machinery.

Thus, it is evident, the Government Printing Office has provided employment for a large number of persons throughout the country as well as materially increased the number of employees in its own organization.

The number of employees and amount of purchases are, of course, regulated by the quantity of printing and binding ordered by Congress and the various Government departments and establishments within the limitation of their annual appropriations. The Public Printer has no control over these expenditures.

CONGRESSIONAL WORK

Congress appropriates an annual working capital of \$2,500,000 for the operation of the Government Printing Office, and against this sum is chargeable all the printing and binding done for Congress, which practically exhausts the capital fund every year.

The cost of congressional printing and binding in the fiscal year 1931 amounted to \$2,499,995.34, which was exceeded only by the Department of Commerce with a total of \$2,894,677.43, the latter including \$1,147,444.86 for Patent Office printing.

The charges to the Government for congressional printing do not include the cost of printing copies of speeches which Members of Congress send to their constituents. This expense is borne by the Members themselves, who paid \$61,257.91 for the printing of 14,683,000 copies of their speeches during the fiscal year 1931. Notwithstanding the congressional campaign last year, the printing of speeches decreased 2,160,850 copies from the total for the preceding fiscal year.

FRANKED ENVELOPES FOR CONGRESS

The number of franked envelopes furnished free to Members of Congress for mailing their speeches and Government publications during the fiscal year 1931 totaled 25,360,900 and cost the Government \$58,767.30, an increase of 2,750,100 envelopes at an additional cost of \$8,454.51 over amount for the fiscal year 1930.

There were 5,969,784 copies of congressional publications, including bills, reports, hearings, and documents other than the Record, printed in the fiscal year 1931 at a cost of \$1,336,927.43, an increase of 1,059,154 copies over the preceding year.

In addition, 12,246,218 copies of Farmers' Bulletins were printed during the year 1931 for congressional distribution at a cost of \$164,114.86, which was charged to a special appropriation for that purpose. The number of Farmers' Bulletins in 1931 decreased 2,910,982 copies from the preceding year.

Printing and binding the Congressional Record for the three sessions of the Seventy-first Congress, March 4, 1929-1931, cost \$1,582,816.24, including \$570,656.44 for the fiscal year 1931.

The daily Record for the three sessions of the Seventy-first Congress totaled 28,228 printed pages, which were consolidated and reprinted in 27,944 pages of the bound Record and made a set of 26 volumes for the entire Congress.

FREE DISTRIBUTION OF THE RECORD

Free public distribution of the Record requires 36,000 copies of the daily edition and approximately 4,800 sets of the bound edition for each session. There were 636 paid subscribers at various times during the Seventy-first Congress.

The daily Record for the third session of the Seventy-first Congress averaged 108 pages for each issue. During the last six days the Record averaged 188 pages for each issue. The highest daily average of any former session was 83 pages.

The largest Record of the last session contained 256 pages, the most ever printed in one night. A previous Record of 366 pages required several days' work before it was issued in 1914. As a matter of fact, approximately 300 pages of type were actually set and proofread in one night for the 256-page Record of March 3, but about 50 pages of type had to be left over for the next issue to facilitate the presswork. Both Houses held late sessions that night, the Senate not adjourning until 3 a. m. However, 6,000 copies of the 256-page Record were printed and delivered by 8 o'clock the same morning.

THIRD OF RECORD NOT PROCEEDINGS

Of the 7,779 pages in the daily Record for the third session of the Seventy-first Congress, 2,388 pages were printed in smaller type, which indicates that about one-third of the Record for the last session was devoted to matter other than the actual proceedings and debates in Congress.

Apparently, the present session of Congress will keep pace with the preceding one, as indicated by a 160-page Record on its second day and an average of 90 pages daily for the 13 issues up to the Christmas recess. The recent index to the daily Record from December 7 to 22, 1931, and the history of congressional bills for the same period filled 324 printed pages.

With the installation during the past summer of a new 64-page web press, the Government Printing Office now has three such presses specially built in recent years for printing the Congressional Record and an older 32-page web press for the same purpose. These four presses make it possible to print a Record of 224 pages with one set of plates or to speed up the production of a smaller Record by the duplication of plates on two or more presses.

Aside from the Record, the principal item in congressional work for the fiscal year 1931 was committee printing, costing \$605,654.05, an increase of \$256,052.80 over the expenditures for the fiscal year 1930. Printing for Senate committees in 1931 cost \$287,674.97, and for House committees, \$316,979.08.

Included in the charges for committee printing is the cost of hearings which, exclusive of the stenographic expense, amounted to \$375,284.05 for the fiscal year 1931, an increase of \$198,219.39 over the preceding year. The hearings printed in 1931 filled 73,054 pages, and 357,732 copies were supplied to the respective committees.

Appropriation committee hearings for the last session totaled 9,776 printed pages. In one night, 695 pages of appropriation hearings were set and read, and 10 proofs made of each page for morning delivery to the committee.

AIDED COMMITTEE ON APPROPRIATIONS

In appreciation of its services to the House Committee on Appropriations, the clerk, Mr. M. C. Sheild, addressed the following letter to the Government Printing Office on March 17, 1931:

With the close of the past session of Congress I feel it a sense of obligation to write in appreciation of the splendid work the Government Printing Office has done in the expedition of the large volume of matter which has been printed for the Committee on Appropriations.

The session was one of the busiest of short sessions which I have experienced, there being so much of interest and extra work arising in connection with appropriation matters due to the prevalence of drought relief and depression relief requests for consideration.

From the start of committee hearings last November until the adjournment on March 4th we have received the most expeditious and satisfactory service that could be wished for. At times I have been almost ashamed to ask for certain volumes of work to be executed in a very limited time, but no task has seemed to be too large or too intricate for prompt production, and I wish you and the fine organization contributing to your aid to know that their efforts on the work of this committee have been and still are very genuinely appreciated.

While the entire staff is concerned with every job, I would feel remiss if I did not especially mention Mr. Edward A. Huse and Mr. Ralph Harris for their extreme courtesy and responsiveness in the contacts which this office makes daily and nightly with the G. P. O.

The chairman of the Senate Committee on the District of Columbia, Senator Arthur Capper, of Kansas, who is a very successful magazine

publisher, thus expressed his approval on April 10, 1931, of the service that the Government Printing Office had rendered his committee:

Allow me to take this occasion to thank the Government Printing Office for its expeditious and efficient service to the committee during a session which made heavy demands upon your forces.

Printing of bills for consideration by Congress is another large-sized job during each session. More bills were introduced during the third session of the Seventy-first Congress than in any previous short session, the number of new bills and resolutions for the session totaling 6,041. In addition to the printing of bills as introduced, 5,718 were reprinted in other forms of legislative procedure, making in all 11,759 various prints of bills during the last session. These bills totaled 76,336 pages, and 4,827,652 copies were printed in the various forms at a cost of \$305,759.73.

BILLS ARE PRINTED IN RECORD TIME

Within 10 days after the opening of the present session of Congress and notwithstanding the delay in organization, the Government Printing Office had completed the printing of all the bills and resolutions introduced in both Houses of Congress up to that time, totaling 9,053 and including 35,170 type pages. On the night of December 9, 1,561 bills were received from Congress. The day and night shifts imposed 408 bills in 16 hours. These records for the printing of bills have not been exceeded at the opening of any prior session of Congress.

A total of 9,524 introduced bills and resolutions were printed for the present Congress up to its recess on December 22, almost equaling the average number for an entire session heretofore.

House subcommittee prints of all appropriation bills, with complete budget estimates and comparative information, were completed for committee use on December 7. These preliminary prints contained 3,800 pages, including a large amount of tabular matter.

LARGER NIGHT FORCE FOR SESSION

In anticipation of the increase of work to be required by the present session of Congress and also partly on account of the Saturday half holiday, the night force was enlarged to 1,083 employees, approximately 200 more than were regularly employed at night during former sessions of Congress. The increase of departmental work had necessitated the continuance of a regular night force of 670 employees since the adjournment of Congress on March 4, 1931.

Night employees are paid 15 per cent in addition to the regular day rate, but it is difficult to obtain enough volunteers for night

work, therefore quite a number of employees have to be drafted from time to time.

The printing of the annual Budget is another job of prime importance to Congress. The 1,000-page quarto book was completed for submittal by the President on December 5, 1931, although the last folio of copy was not received by the Government Printing Office until December 2. The first delivery consisted of 1,780 copies.

In appreciation of this service, the Director of the Bureau of the Budget, Col. J. Clawson Roop, addressed the following letter to the Public Printer under date of December 11, 1931:

I take pleasure in expressing to you and your force of able assistants my appreciation of the manner in which the printing of the 1933 Budget was handled by the Government Printing Office. This work was done in a comparatively short time with dispatch and accuracy. It is a testimonial of the great efficiency of your establishment.

I would appreciate it very much if you would extend my thanks to Captain Moorhead and to Messrs. Huse, Barnhart, Mitchell, and Phillips for the splendid cooperation which they rendered in connection with the printing of the Budget; also to Messrs. Wright and Rohm for their valuable service in assisting in the proofreading of the Budget.

EXECUTIVE JOURNALS OF THE SENATE

By resolution of February 28, 1931, the Senate ordered the printing of its confidential Executive Journals for the last 30 years, from the Fifty-seventh to the Seventy-first Congress, inclusive. These journals record the executive proceedings of the Senate in the consideration of presidential appointments, treaties, and foreign relations, and are always held strictly confidential until released by order of the Senate.

There have been only five previous printings of the Senate Executive Journals, the last one in 1911 covering the proceedings from 1891 to 1901. The Executive Journals now being printed begin with volume 32 and will consist of 51 books. The completed set will include 71 volumes, 14 of which have two parts each. About 12,000 pages for 25 of the additional volumes were put into type during the past summer. It is estimated that the 51 books to be printed will contain about 37,000 pages, including extensive indexes.

A Senate resolution provides for the printing of 500 copies of each volume of these Executive Journals and directs that the injunction of secrecy shall not be removed until ordered by the Senate when the printing has been completed. The indexing will require several months' work before the further progress can be made with the printing.

The cost of printing and binding the additional volumes of the Senate Executive Journals will be approximately \$175,000, which

will be chargeable to the regular annual appropriation for printing and binding for Congress.

Congress also ordered during the year the printing of some of the reports of the National Commission on Law Observance and Enforcement, the so-called Wickersham Commission. The report on the Enforcement of the Prohibition Laws of the United States was printed as House Document No. 722, January 7, 1931, being a complete reprint of the report which the commission had first published by a commercial printer. The congressional edition of this report consisted of 172 pages, and 30,663 copies were printed.

RECORDS OF THE WICKERSHAM COMMISSION

On February 26, 1931, the Senate ordered the official records of the National Commission on Law Observance and Enforcement printed as Senate Document No. 307, Seventy-first Congress, under the direction of the Joint Committee on Printing. These records fill 2,916 printed pages bound in five volumes. Of each volume there were printed 1,923 copies required for the regular distribution of a congressional document. No extra copies were ordered for free public distribution. The cost of printing and binding the five volumes was \$23,289.67. The Superintendent of Documents ordered 300 sets for sale at \$6.75 per set, but none has been sold as yet.

Fourteen separate parts of the commission's full report were printed by the Government Printing Office for the commission at a cost of \$42,870.52, making the total expenditure for the 101,345 copies of its publications, including 7,569 type pages, amount to \$71,435.87. A considerable number of copies of the separate parts have been sold by the Superintendent of Documents at a price of \$7.25 for the set.

The National Commission on Law Observance and Enforcement, on June 26, 1931, passed the following resolution of appreciation of the services rendered by the Government Printing Office in the printing of its reports:

Resolved, That the commission express its appreciation of the very efficient service which it has received from the Government Printing Office in connection with the printing of the various reports of the commission. The exigencies of the situation created by the limitation of time on the commission's work made it necessary to require very unusual service of the Government Printing Office and the commission is desirous of expressing its appreciation of the service which the Government Printing Office has rendered in so effectively meeting all its requirements.

THE WRITINGS OF GEORGE WASHINGTON

Good progress is being made in the printing of the Writings of George Washington, a monumental set of 25 volumes authorized by Congress to commemorate the bicentennial celebration in 1932 of Washington's birth year. Three volumes have been printed and

bound, and the text for six more volumes is in type. Further work is awaiting action by the editors. At the present rate of progress, the complete sets will not be available for distribution for several years.

A bill now pending in Congress provides that of the 2,000 sets authorized for sale by the Superintendent of Documents, those ordered not later than July 1, 1932, by public libraries and institutions and societies of learning shall be priced at \$50 per set. The price of the remaining sets then available to the public shall cover the balance of the cost of the publications, which will undoubtedly be considerably in excess of \$50 per set. No sets are provided for depository libraries except by purchase. One thousand additional sets will be printed for the official distribution designated by law.

BICENTENNIAL EDITOR PRAISES BOOK

Upon receiving a copy of the first bound volume the editor of the Writings of George Washington, Mr. J. C. Fitzpatrick, addressed the following letter of appreciation to the Public Printer under date of January 21, 1931:

My thanks for volume 1. The Printing Office has done itself proud, and the volume, according to my way of thinking, is a specimen of very fine and careful bookwork. What impresses me most is the dignity of it, along with the fine workmanship. I see nothing to criticize. I do not think that the acknowledged best of private publishers could have done any better.

For the advice and counsel of the Government Printing Office I am at all times grateful and accord it not only full credit for this fine piece of work but also willingly admit that your craftsmen have been of much service to ye editor.

The Public Printer was also pleased to receive the following tribute to the printing of the Writings of George Washington from Mr. George W. Jones, of London, the famous dean of master printers, who designed for an American company the Granjon type used by the Government Printing Office for the first time in the printing of the Washington books:

I want to tell you how much I appreciate the generously worded copy you sent me. It is a next-door companion to Doctor Bridge's Testament of Beauty. These two books are my most cherished because they are the most personal and intimate of my book possessions. I can not tell you how proud I am of them.

I can well believe that beautiful work such as this, coming from the Government Printing Office, will exert a big influence on American printing, because, after all, the purely "highbrow" and the "striving-after-effect" work is seen by a comparatively few.

OTHER BOOKS ABOUT WASHINGTON

Other special publications in commemoration of the Washington Bicentennial that have been printed by the Government Printing Office include—

An account of the Virginia Campaign and the Blockade and Siege of Yorktown, by Col. H. A. Landers, a royal octavo volume of 219

pages, printed in 12-point Kennerley type on antique rag paper and profusely illustrated by the offset process;

The Correspondence of George Washington and Comte de Grasse, from the Washington Papers in the Library of Congress, a royal octavo of 168 pages in 12-point roman type, also on antique rag paper; and

Eight hundred and fifty-three thousand copies of the following pamphlets relating to Washington issued by the United States George Washington Bicentennial Commission: The Mother of George Washington; Homes of Washington; Family Relationships; Youth and Manhood; Home Making of George and Martha Washington; Social Life; George Washington, the Christian, the Man of Sentiment, a Friend and Patron of Music, the Leader of Men, the Builder of the Nation, the Man of Action in Military and Civil Life, the President, and Year by Year; and Programs and Plans for the Nation-wide Celebration in 1932 of the Two Hundredth Anniversary of the Birth of George Washington.

HISTORY OF THE NATIONAL CAPITAL

In connection with the Washington Bicentennial publications, Congress has also authorized the printing of another historical volume, entitled "Washington, the National Capital," which will be completed in March, 1932. It will contain about 700 pages in 12-point Kennerley type and include 400 half-tone illustrations. An edition of 7,500 copies will be printed, of which 2,000 are to be for sale by the Superintendent of Documents.

Another artistic publication, "The Development of the National Capital," was printed during the past year in quarto size with 10-point Century expanded type on coated rag paper. About 10,000 copies of this handsome publication were issued.

COST OF PRINTING UTILITY REPORTS

Printing is progressing on the reports on electric power and gas utility companies which the Federal Trade Commission was ordered to submit to the Senate from time to time in compliance with a resolution by Senator Walsh of Montana adopted on February 15, 1928. Up to date this document (S. Doc. No. 92, 70th Cong.) consists of 38 volumes, containing 17,536 printed pages, and has cost to date \$153,113.07 for approximately 3,500 copies. It is estimated that these reports will not be completed for another year or two and that the total cost of printing will exceed \$200,000.

The printing of special volumes of the eulogies delivered in the Seventy-first Congress in honor of the twenty-four deceased Members

of that Congress cost \$64,478.74 for the 128,808 bound copies. Included in this number were 1,200 copies bound in full morocco for family distribution.

A recent publication that has received much favorable comment is the Plan Presented to the President by the Muscle Shoals Commission. Although largely statistical, the report was made attractive with well-proportioned type pages, the text being accompanied by many half-tone illustrations, colored maps, and diagrams. The 112 pages of the report were appropriately bound in cloth with a distinctive cover designed by the Government Printing Office.

STYLE OF GOVERNMENT PRINTING

Among many commendations of the good work of the Government Printing Office are the following, which the Public Printer is especially pleased to quote at this time in view of recently published criticisms of Government printing as "absolutely mediocre," "atrocious," and "frequently downright abominable."

From Mr. J. Horace McFarland, of Harrisburg, Pa., former president of the American Civic Association, who is also noted for the beauty of his own printing products, under date of May 7, 1931:

I don't know whether you ever dare look at individual items in the production of your big print shop, but, if you do, please look at Senate Document 128, "The Preservation and Improvement of Niagara Falls and Rapids," referring to page 7 of which will connect my interest in this particular document.

But the reason I am writing you about it is, first, to hand you the largest bouquet I can get mailed for 2 cents for the quality and beauty of the work done. It isn't often that documents of this sort are as splendidly carried through.

The publication which pleased Mr. McFarland was printed with Kennerley type and contains 360 pages, including numerous half-tone and line cuts made by the Government Printing Office.

BOOK PRAISED AS "MOST ARTISTIC"

From the Hon. Ray Lyman Wilbur, former president of Stanford University, who on December 24, 1931, sent the following letter of congratulations to the Public Printer on the printing of Conservation in the Department of the Interior, a 272-page octavo volume with 160 illustrations produced entirely by the offset process and bound in cloth with appropriate decorative design:

I congratulate you on the work of the Government Printing Office in publishing the book Conservation in the Department of the Interior, copies of which have just been received. It is a most artistic and distinctive publication and your office has cooperated to the fullest extent with this department in its preparation. We appreciate the interest you have taken in it.

From Mr. James H. Van Wagenen, United States Commissioner on the International Boundary Commission, under date of November 3, 1931, relative to the printing of the Joint Report of the Reestab-

lishment of the Boundary Between the United States and Canada, a volume of 640 pages and 95 illustrations appropriately bound:

The Canadian Commissioner, Hon. Noel J. Ogilvie, and I wish to express to you and the employees of the Government Printing Office our appreciation of the excellent work done on the printing and binding of our Joint Report Upon the Reestablishment of the Boundary Between the United States and Canada, Northwesternmost Point of Lake of the Woods to Lake Superior.

We are certain that the fine results obtained were due to the cooperation and personal interest of every member of your force who worked on this report, particularly Mr. William A. Mitchell, Superintendent of Planning, and Mr. Martin R. Speelman, Superintendent of Binding, and his assistants, Mr. John A. Patterson and Mr. M. C. Harman.

"HANDSOME," SAYS CANADIAN COMMISSIONER

From His Britannic Majesty's Commissioner, the Hon. Noel J. Ogilvie, of Ottawa, Canada, under date of November 14, 1931, in regard to the same publication:

I wish to express my appreciation of the splendid manner in which you have printed and bound the Joint Report of the International Boundary Commissioners Upon the Reestablishment of the Boundary Between the United States and Canada, Northwesternmost Point of Lake of the Woods to Lake Superior.

The copies of the report and of the atlases of maps bound in full and half morocco which have already been received are very handsome volumes indeed and have been much admired by those to whom they have been shown.

Let me again express my appreciation of your efforts and those of your staff in enabling the commission to present the results of its work in such attractive form.

BEAUTIFUL BOOK FOR STATE DEPARTMENT

From Mr. Hunter Miller, historical adviser of the Department of State, under date of October 16, 1931, in regard to printing and binding of the first two volumes of the *Treaties and Other International Acts of the United States of America*, which will make a series of 9 or 10 volumes:

I can not forbear expressing to you both officially and personally my congratulations on this beautiful book. It shows from cover to cover continuous evidence of the thoughtful care and pains taken by those concerned with its production. I do not see how it could have been better done and before examining the volume I would not have thought that it could have been done as well. You and your fellow workers are justly entitled to be proud of this admirable and artistic accomplishment as my colleagues and myself are delighted with it.

From Mr. Thomas H. MacDonald, Secretary General of the American Organizing Commission of the Sixth Congress of the Permanent International Association of Road Congresses, under date of July 29, 1931, in regard to the quality of printing for the International Road Congress:

On behalf of the American Organizing Commission of the Sixth International Road Congress, I wish to express our appreciation of the work done by your

organization in handling the great volume of printing necessitated by the meeting of the Congress in Washington, October 6 to 11, 1930.

This work included the printing of the reports to the Congress by engineers from many countries, the printing of the Daily Bulletin during the week of the Congress, and, more recently, the publication of the proceedings.

We have been much impressed with the excellent quality of the printing, the promptness with which it has been executed, and the unfailing courtesy we have received from your staff.

From Medical Director Charles M. Griffith of the United States Veterans' Administration, under date of June 9, 1931, in regard to printing the Medical Bulletin of the United States Veterans' Bureau:

It is felt that appreciation should be expressed to you for the carefulness and excellent quality of work which is being done in the printing of the United States Veterans' Administration Medical Bulletin. Editors of other journals, in reviewing copies of the Medical Bulletin, frequently comment upon its excellent typographical make-up, and particularly commend the photographic cuts. It is recognized that the proofreading of the technical copy of this publication requires care and intelligence, and I am grateful to you and your staff for the care which you have shown in this respect.

WORK PLEASES EDUCATION COMMISSIONER

From Hon. William John Cooper, Education Commissioner, Department of the Interior, under date of December 29, 1930, in regard to the typography of *School Life*, a periodical printed for the Office of Education:

I wish to express my appreciation for the excellent manner in which the back page of December *School Life* was set up. The man responsible for the typography and organization of the copy which the Office of Education sent over to the Government Printing Office handled it unusually well.

From Dr. George F. Bowerman, Librarian of the Public Library of the District of Columbia, under date of May 14, 1931, in regard to printing for the Washington City Library:

I wish to let you know how much we appreciate the fine printing job that you turned out in our last reference list entitled "The World War and Its Aftermath."

Time was when people used to think that the imprint of the Government Printing Office insured a tasteless job, but that is no longer the case. For example, we are proud of our monthly bulletin entitled "Your Library," and receive many complimentary expressions concerning it.

EQUALS HIGHEST COMMERCIAL CLASS

From Mr. Robert M. Davis, editor of the *Survey of Current Business*, Department of Commerce:

I have been most favorably impressed with the class of work turned out by the Printing Office in arrangement of the material, in the proper use of type, and in the accuracy of typesetting. I think I am justified in saying that the Govern-

ment Printing Office is on a par with, if not a little above, that usually found in the highest class of commercial publishing. Coming from one of the best publishing houses in the country, I have been most favorably impressed with the work turned out by your organization.

From Mr. J. Louis Gelbman, chief, Division of Printing, Government of the District of Columbia :

I am writing this letter to you to express the appreciation of the heads of the various departments and myself on the excellence of the work produced by the Government Printing Office.

It has been a source of gratification since the establishment of the layout section to note the improved quality of the workmanship.

Evidently, from the foregoing commendations and from numerous other expressions of approval by fully competent authorities, Government printing is not regarded as altogether "atrocious" or merely "mediocre" by those who have an intelligent understanding of the work of the Government Printing Office.

DE LUXE EDITIONS FOR PRIVATE PRINTERS

It is not the function of this Office to print luxurious books to be exhibited in art galleries or to be treasured by millionaire bibliophiles. So called "fine printing" is the playground for academic typographers and private presses in which the Government Printing Office has no desire to disport itself at the expense of the taxpayers.

Unlike the government printing establishments of several other countries, the United States Government Printing Office does not engage in printing and binding of works of art and literature in competition with commercial book publishers. Therefore the Public Printer has no opportunity to produce de luxe editions for the delight of dilettantes and incidentally, of course, for the profit of the purveyors of freak types and fancy paper.

REAL PURPOSE OF GOVERNMENT PRINTING

The real purpose of Government publications is to convey information to the public in readable form. Accordingly, Government printing must be legible above all else. That essential can not be attained by producing the Congressional Record in the format of a Kelmscott Chaucer or designing the Agricultural Yearbook like a de luxe edition of The Bible. Government printing has no need to decorate itself in such luxurious style, but it does not lack the skillful touch of capable craftsmen, as evidenced in the many Government publications that have been praised by an appreciative public. This understanding by the readers of Government publications is more pleasing to the Public Printer than all the commendations that could come from the typographic art critics who find

fault with any book that does not bear the imprint of an ancient King's Printer or the markings of the crude types and primitive presses of a colonial printer.

Notwithstanding the contrary views of sneering critics, the quality of Government printing has greatly improved in recent years, as has been attested by such distinguished printers and typographic experts as Mr. John Henry Nash, of San Francisco, Mr. Norman T. A. Munder, of Baltimore, Mr. George W. Jones, of London, Mr. Harry Hillman, former editor of *The Inland Printer*, and Mr. Henry Lewis Bullen, curator of the famous Typographic Library and Museum in Jersey City, whose commendations have been quoted in this and previous reports of the Public Printer. They are among the world's foremost authorities on typographic subjects and their favorable comments are highly gratifying, especially the expression of "a sympathetic understanding of the situation" by one member of this notable group who likewise has been the victim of attacks from the same source.

The better Government printing is the result, in part, of a thorough house cleaning which the Public Printer began three years ago to rid the Government Printing Office of a vast accumulation of obsolete type faces. In all, about 650 fonts of useless types, representing 75 discarded faces, were remelted to provide metal for other purposes.

NEW TYPE BOOK REFLECTS PROGRESS

The success of this undertaking is reflected in a new Type Book, which the Government Printing Office completed during the past year under the supervision of the Deputy Public Printer, Mr. John Greene, an authority on type faces and good printing.

The new Type Book contains printings of all the book and job type faces now in use in the Government Printing Office arranged in orderly sequence by series and sizes. An important innovation is the measurement of the actual point size of the face based on the capital letter "M" in addition to the body size of the type. The relative position of the face on the type body is also shown. A scale of parallel pica-spaced rules indicates the exact number of letters of each type face from 6 to 72 point that can be printed in a 34-pica line.

The carefully selected type lists include 10 notable faces for text composition as well as a number of faces in limited series for other use. Of course, the famous Caslon family has the place of honor, accompanied by Bodoni and Baskerville, for bookwork. A recent acquisition is a complete series of Granjon designed by George W. Jones, one of the foremost printers and type designers of the present

age. The famous American type designer, Frederick W. Goudy, is well represented with his Kennerley, Light Old Style, and Forum faces, of which the Government Printing Office is especially proud. In addition to roman, other faces used for text composition are Bookman, Cheltenham, and Century Expanded. The recently designed Ionic face was adopted as the new type dress for more legible printing of the Congressional Record beginning with the third session of the Seventy-first Congress.

The Government Printing Office does not use any so-called ultra-modern, sans serif, or other freak type faces which have made many present-day publications illegible and ridiculous.

A special section of the Type Book is devoted to accented letters in various faces and numerous foreign alphabets, including German, Greek, Hebrew, Russian, Ruthenian, and Serbian. The book shows a multitude of fractions and special equation characters, as well as a vast number of arbitrary signs, points, and odd characters.

MANY TYPES FOR INDIAN LANGUAGES

The Type Book also reveals the fact that the Government Printing Office possesses the world's greatest collection of special matrices for making types to print the various Indian languages used in the publications of the Smithsonian Institution. The fonts of Indian types have 246 special characters in the 6, 8, and 10 point, which are used for printing Bureau of Ethnology publications in the following tribal languages of American Indians: Acoma, Choctaw, Miskito, Sumu, Karuk, Fox, Cherokee, Zuni, Pawnee, Atakapa, and Osage.

Owing to the expense of printing the Type Book, it is not available for public distribution. However, a few copies were submitted to trade publications and typographic experts, and their favorable comments are indeed gratifying.

SELECTION OF TYPE FACES PRAISED

The following review was printed in the *Bulletin of the United Typothetæ of America* on September 1, 1931:

A copy of the Government Printing Office Type Book, showing the display and body faces, ornaments, rule, etc., in use in the document and job sections, has been received. It is a hard bound book, 8½ by 11½ inches in size, the various divisions being thumb indexed, and shows excellent planning and workmanship throughout. The pages devoted to display type are overprinted with light red down rules, spaced 1 pica apart, thus showing the number of characters in any width up to 34 picas, while at the extreme right are given figures showing the number of characters in a 34-pica line.

A special feature, one that should prove of great advantage, is the giving of the actual point size of the face in addition to the body size, in all the different sizes of the display and poster wood type. Also, at the end of each line of capitals in each

size there appears the capital M preceded by a 4-point rule which shows the point size of the body and the position of the face on the body. This feature should be a great help in avoiding misunderstandings as to type sizes on the part of those having to do with the ordering of printed matter, yet who are not fully versed in the different type sizes.

The book shows, distinctly so, the careful overhauling that has been given the type faces of the Government Printing Office under the direction of Public Printer Carter. The old and obsolete faces are conspicuous by their absence—they have been discarded, the total number of different faces being greatly reduced. Yet, the specimen book shows an excellent range of display and text types, a selection that should meet every requirement of the various Government departments in their regular run of work, and also permit of making the printed matter produced for these departments compare well with up-to-date general commercial printing produced anywhere. At the same time, it shows that the Government Printing Office is equipped with type faces that enable it to produce printing of the highest character artistically.

NEW STYLE MANUAL IN PREPARATION

It had been hoped that by this time the Government Printing Office could also have issued a thoroughly revised edition of its Style Manual. The task of preparation has proven more difficult than first anticipated by the special departmental committee which has generously undertaken to prepare a new manual for consideration by the Style Board of the Government Printing Office.

Members of the advisory committee, by invitation of the Public Printer, were designated by the Secretary of State, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, the Librarian of Congress, and the Secretary of the Smithsonian Institution, and include the following: Mr. H. D. Hubbard, assistant to the Director of the Bureau of Standards; Miss A. M. Ball, editor, Department of State; Mr. Bernard H. Lane, senior editor, Department of the Interior; Mr. Martin A. Roberts, reading-room superintendent, Library of Congress; Mr. Frank D. Smith, assistant chief of publications, Department of Agriculture; and Mr. Webster P. True, editor, Smithsonian Institution.

ADVISORY COMMITTEE TO REPORT SOON

The committee has had the revision of the Style Manual in hand for the last two years and plans to submit a final report to the Public Printer about March 1, 1932. In the meantime, the Style Board of the Government Printing Office has begun consideration of several sections which have been completed by the advisory committee. The printing act of 1895 requires that the form and style in which Government printing and binding shall be executed shall be determined by the Public Printer.

Undoubtedly, the careful and thorough work that has been done in preparation of the new Style Manual will improve the quality of

Government printing and may also be of real service to other printers, publishers, and educators who already have taken great interest in the revision of the Government Printing Office Manual.

CHARGES FOR GOVERNMENT WORK

Perhaps the new Style Manual will help also to reduce the cost of authors' alterations of printed proofs which in 11 years, 1921-1931, amounted to \$2,282,791.99. The last year, 1931, was the peak of the 11 with a total charge of \$240,398.69. The Department of Commerce continues to head the list of these extra charges, with an expenditure for that purpose in 1931 of \$36,829.74. Changes from copy cost the Navy Department \$25,348.34. The War Department ranked next with alterations amounting to \$17,060.77, followed by the Department of Agriculture with \$16,201.15 to its debit. Authors' alterations in congressional printing during 1931 cost \$25,215.74.

Another cause of extra expenditures in printing is the frequent requirement for unusual rush in the production and delivery of certain publications. Preparation of copy for these hurried jobs has usually been delayed until the last minute when a demand is made on the printer to make up for all the time lost elsewhere. Rush jobs involve extra expense in upsetting the regular routine of the office, frequently requiring night and overtime work at increased rates of pay and necessitating an additional charge of 50 per cent.

EXPENDITURES FOR "RUSH" PRINTING

In the last 11 years, various branches of the Government service, other than Congress, have expended \$338,216.16 in extra payments for rush work. The high mark of \$50,657.48 was reached last year, although the Government Printing Office was better equipped and manned to handle its work more expeditiously than ever before.

The greatest demand for rush work continues to come from the Department of Justice, which expended \$17,886.81 for that purpose last year, or nearly three times the extra charges thus incurred by any other department. The total expenditure of the Department of Justice for rush work in 11 years has been \$61,285.75.

The great bulk of rush work for the Department of Justice has been the printing of attorneys' briefs and transcripts of record for court filing. Many of the briefs have been submitted by attorneys late at night for delivery of printed copies the following morning. This great rush at the last minute has been made necessary by delays in preparation of briefs until the court filing time has about expired.

No commercial printing office could afford to maintain a sufficient force to meet these unexpected over-night demands which have now

become a habit with some lawyer patrons of the Government Printing Office.

If permitted to handle printing for the Department of Justice in the usual procedure of other work, the cost of a large part of its briefs could be reduced 50 per cent.

Government charges for printing and binding frequently are compared with commercial prices which, as usually quoted, do not include the extra charges for authors' alterations, special type faces, bindery operations, overtime, and night work.

COMPARISON WITH COMMERCIAL PRICES

The following actual case shows the unfairness of such comparisons:

For printing the regulation 50 copies of a brief of 76 pages, a local printer quoted a minimum price of \$2 per page, but added extra charges of \$5 for cover and \$11 for italic and black letter composition, bringing his charge up to \$168. The local printer figured on doing the job in normal time without extra expense for authors' alterations and overtime or night work.

The minimum charge by the Government Printing Office is \$2.14 a page for 125 copies, including the usual amount of italic and black letter; but the brief as the Government Printing Office was actually required to print it for the Department of Justice cost \$264.10, due to an attorney's insistence that the work should be rushed to the limit, with an additional expense of \$87.68. The attorney also made alterations in the printed brief costing \$8.58 more. Without these extra costs, for which the Government Printing Office was in no way responsible, its charge for printing the brief with cover in the ordinary way would have been \$167.84, or substantially the same as the price quoted by the local printer.

Numerous other comparisons of the scale of charges for Government printing have been made with the composite production costs of commercial printing as compiled by the United Typothetæ of America. These comparisons show that the Government Printing Office charges are no greater than the prices quoted for commercial printing under similar conditions and of equal quality.

PRINTING OF TABULATING CARDS

The printing of tabulating cards presents another interesting and definite basis for a comparison of Government and commercial charges, which shows greatly to the credit of the Government Printing Office. Prices charged by a tabulating machine company and

the Government Printing Office for furnishing printed tabulating cards to various agencies of the Government are as follows:

	Tabulating machine company	Government Print- ing Office
For Census and departmental size (7½ by 3¼ inches):		
Manila, per 1,000 cards.....	\$1. 17	\$0. 80
Colored, per 1,000 cards.....	1. 25	. 82
Striped, per 1,000 cards.....	1. 22	. 82
Numbered, per 1,000 cards.....	1. 40	. 90
For General Accounting Office size (5½ by 3¼ inches):		
Manila, per 1,000 cards.....	. 78½	. 55

CENSUS BUREAU PAID HIGHER PRICES

Owing to the insistence of the Director of the Bureau of the Census that all cards for the tabulation of the Fifteenth Census (1930) be purchased from the tabulating machine company at the higher prices, the Government Printing Office has not printed any cards for the present census. To date, approximately 427,000,000 cards have been bought of the tabulating machine company for the Fifteenth Census at a cost of more than half a million dollars.

If the Government Printing Office had been permitted to print these census cards, as it had done for all previous censuses since 1909, the saving to the Government, according to the above comparison of prices, would have been more than \$200,000. However, the net saving would have been somewhat less owing to the higher rental charge that the tabulating machine company exacts for the use of Government-made cards in the machines which it leases to the Government. In the printing by the Government Printing Office of cards for prior censuses, the Census Bureau saved more than \$250,000.

CARDS FOR GENERAL ACCOUNTING OFFICE

Beginning with the calendar year 1931, the Government Printing Office has been printing all the tabulating cards used by the General Accounting Office, totaling approximately 60,000,000 cards for the year. The Government Printing Office charge for these cards, as stated above, is 55 cents per 1,000. The tabulating machine company's price for furnishing similar cards the preceding year was 78½ cents per 1,000. The reduction amounted to \$14,000 in the cost of the cards used by the General Accounting Office in 1931.

Several years ago the tabulating machine company charged as high as \$1.10 per 1,000 for cards for the General Accounting Office and the Post Office Department, and \$1.40 per 1,000 for other departmental cards. Undoubtedly the Government would have continued

to pay these prices if the Government Printing Office had not succeeded in printing satisfactory tabulating cards at much lower rates than are demanded by the tabulating machine company.

Based on these figures, it is a fair estimate that already more than half a million dollars has been saved in the printing of tabulating cards by the Government Printing Office, and the Government service has thus been released, at least partially, from the clutches of a monopoly that would have continued to exact many millions of dollars in excessive charges for printing tabulating cards.

GREAT INCREASE IN CARD PRINTING

The number of tabulating cards printed by the Government Printing Office during the fiscal year 1931 more than doubled the quantity which it produced the previous year, the total for 1931 being 82,288,200 cards, an increase of 53,243,700. During the first six months of the present fiscal year, July 1 to December 31, 1931, there were printed 39,226,000 cards, as compared with 23,218,200 cards produced in the first six months of the preceding fiscal year.

Aside from the Bureau of the Census, the only other Government establishment in Washington that does not procure its tabulating cards from the Government Printing Office, is the Post Office Department, which purchased approximately 170,000,000 cards from the tabulating machine company in 1931 at 78½ cents per 1,000 as compared with the price of 55 cents per 1,000 which the Government Printing Office charged the General Accounting Office for similar cards.

The Government Printing Office does not attempt to compete with prison labor or with the products of other Government plants which employ laborers, clerks, and soldiers at work done in the Government Printing Office by skilled craftsmen who are paid adequate wages for their services. However, the Government Printing Office can and does produce printing and binding at less cost and with better service to the Government than any commercial plant could do with correspondingly fair rates of wages and proper working conditions.

BASIS FOR COMPARISON OF COSTS

Critics of the cost of Government printing sometimes contend that, as the Government Printing Office does not pay rent, taxes, insurance, interest, or profits, its charges should be less than the prices of commercial plants. Such criticism overlooks the fact that these expenses of a commercial plant are more than offset by the vast expenditures of the Government Printing Office for annual leave and holiday pay, amounting to approximately \$1,970,000, which has to be included in the annual charges for Government printing.

Congress has granted employees of the Government Printing Office 63 days of leave and holidays annually with full pay, making one-fifth of their time nonproductive but chargeable, and constituting 13 per cent of the total annual charges for printing and binding.

\$2,000,000 YEARLY NONPRODUCTIVE TIME

Besides having to include nearly \$2,000,000 for nonproductive time in its annual charge of approximately \$15,000,000, the Government Printing Office also has to incur other large expenditures which do not enter into the cost of commercial printing.

For instance, numerous acts of Congress, rulings of the Comptroller General, and regulations of the Treasury Department necessitate an elaborate system of accounting, the cost of which greatly exceeds the expenditures for that purpose by any commercial establishment.

To protect and safeguard the property of the Government Printing Office, an unusually large watch force has to be employed, the cost of which offsets to a considerable extent the expenditures of a commercial establishment for insurance.

The civil service system of hiring and discharging employees is likewise cumbersome and adds materially to the cost of Government operation by the slow and expensive method of obtaining employees and readjusting the force to the needs of the service from time to time.

STORAGE OF PLATES AND TYPE PAGES

Another factor in the cost of Government printing is the tremendous amount of metal in type pages and plates that must be kept standing to meet the reprinting requirements of Congress and the departments. The vaults and storage rooms of the Government Printing Office are filled with approximately 1,700,000 plates and 130,000 pages of type, containing approximately 4,600,000 pounds of metal. This represents a standing investment in metal alone of approximately \$275,000.

Type storage had become such an added burden that the Public Printer was compelled on January 1, 1930, to establish an extra charge for holding type for six months or longer. But this additional charge did not remedy the situation, and it was necessary on January 1, 1932, to increase the storage charge and reduce the period to three months. The charges for type storage in the fiscal year 1931 amounted to \$18,917.15, which did not begin to compensate the Office for its expenditures for metal, storage space, and handling.

Besides these extra costs, the Government Printing Office must be equipped and manned to be able to meet any emergency, especially

when Congress requires the printing overnight of a 256-page Congressional Record or a 535-page tariff bill, or the Patent Office demands the printing of 3,174 patent specifications of various sizes in one weekly issue. Those are emergencies for which no commercial printing plant could afford to install sufficient machinery, and yet the Government Printing Office has to be prepared at all times to handle just such unexpected situations.

These emergency provisions might be termed a "stand by" service for which electric power companies make a heavy charge whether any actual service is rendered or not. The Government Printing Office can make its charges only when the service is actually rendered. Fortunately for its finances, there is no "standing by" of Government Printing Office employees awaiting work to do, and the extra machinery installed to meet any emergency is not paid for its "stand by" service.

CHARGES INCLUDE ALL EXPENDITURES

Every item of the expenditures during a fiscal year must be included in the charges for printing and binding for that year. This applies not only to the expenditures for wages and materials but also to all purchases of machinery and equipment and all expenses in the maintenance, upkeep, and repair of the plant, including heat, light, and power. The law requires that the total charges for work done during each year shall equal the total annual expenditures, and no special appropriation is made to cover the cost of operating the plant.

For the fiscal year 1931 the total charges for printing and binding exceeded the expenditures by only \$18,674.13, or one-eighth of 1 per cent. The excess of receipts over expenditures in the preceding fiscal year was $1\frac{3}{4}$ per cent.

DEPARTMENTAL PRINTING

The Department of Commerce maintained its lead in printing expenditures with a payment to the Government Printing Office in the fiscal year 1931 of \$2,894,677.43, an increase of \$322,080.27 over the sum expended for that purpose in 1930. This total includes charges of \$1,147,444.86 for Patent Office printing and \$1,747,232.57 for all other printing for the Department.

Keeping pace with the greater cost of its printing, the Department of Commerce increased the number of its publications during the fiscal year 1931 by 2,958,970 copies, or 35 per cent more than were issued in the preceding year. A total of 11,319,540 copies of Com-

merce publications were printed in 1931. In addition, several hundred thousand copies of Commerce publications were ordered by the Superintendent of Documents for sale to the public.

Of one Commerce publication alone, a 116-page illustrated pamphlet relating to Furniture, Its Selection and Use, 500,000 copies were printed in May, 1931, for sale by the Superintendent of Documents at 20 cents per copy. The Director of the National Committee on Wood Utilization, which prepared the report for the Department of Commerce, insisted that the half million copies would be needed immediately to supply the public demand for advice on the selection and use of furniture. However, to date, only about one-fifth of the copies have been sold, and the bulk of these were bought by furniture manufacturers and dealers for redistribution to prospective customers. The Department of Commerce ordered only 2,000 copies for its own use.

The total printing and binding charge for the furniture pamphlet was \$29,731.40, of which \$28,672.73 was paid by the Superintendent of Documents for the 500,000 sales copies. The receipts to date from the sale of this publication amount to \$10,503.71.

SALE OF COMMERCE PUBLICATIONS

At the request of the Department of Commerce, the Superintendent of Documents also ordered the printing for sale of 878,121 copies of other publications issued by the National Committee on Wood Utilization. These pamphlets contain a wide range of advice and information about the use of various kinds of wood and its products, from lumber to sap stains, sawdust and wood flour. The popularity of these pamphlets is attested by the fact that to date 683,140 copies have been sold, more than a third of which were the three pamphlets in the *You Can Make It* series.

Another bit of advice to home folks, which the Department of Commerce printed last year, was a 128-page pamphlet entitled "Care and Repair of the House," prepared by the Division of Building and Housing of the Bureau of Standards. Sixty thousand copies of these directions for repairing "doors that rattle, latches that stick, floors that creak, screens that sag," etc., were printed for sale at 20 cents per copy. Nearly half that number are still in stock with the Superintendent of Documents awaiting purchase by people who may want to know how to make their homes more comfortable and attractive. This pamphlet cost \$4,869.01.

The Commerce Yearbook for 1931 consisted of two volumes containing a total of 1,463 pages. Of volume 1, relating to United States commerce, 14,012 copies were printed, and of volume 2, relating to

foreign commerce, 7,022 copies, nearly all of which were ordered for sale by the Superintendent of Documents. The cost of the Commerce Yearbook for 1930 was \$32,133.96, of which \$18,500 was returned to the Government by the sale to date of 18,500 copies.

Another book issued by the Department of Commerce is the Bureau of Standards Yearbook, of which 5,429 copies were printed in 1931 at a cost of \$4,725.89. During the year, 2,687 copies were sold, the receipts amounting to \$2,687.

Printing of the report of the Fifteenth (1930) Census of the United States is now in full progress. To date, approximately 17,000 pages of census schedules have been printed for the Bureau of the Census at a cost of \$440,000. The bureau plans to submit the last of its copy for printing the Fifteenth Census reports by July 1, 1932. The additional copy will make about 25,000 pages, 9 $\frac{1}{8}$ by 11 $\frac{3}{8}$ inches in size, 95 per cent of which will be in tabular form. The census printing in hand and yet to come will cost approximately \$750,000, bringing the total expenditure for printing the Fifteenth Census reports up to nearly a million and a quarter dollars. More than half a million dollars in addition has been spent for contract printing of tabulating cards.

PRINTING FOR THE PATENT OFFICE

Patent Office printing in the fiscal year 1931 showed a slight decrease from the preceding year when there was an abnormal issue of patents during the month of June, 1930, to avoid the higher fees. However, since the beginning of the present fiscal year there has been a gradual increase in the issue of patents, the weekly total now averaging over 1,000 patents as compared with a former average of about 800.

The increase of patent printing required the organization in September, 1931, of a special night section of 35 employees to assist the regular day section of 131 employees engaged exclusively in composition and presswork for the printing of patent specifications and the Official Patent Office Gazette. The editing and proofreading of these publications require the additional services of 135 editors, readers, and revisers.

Notwithstanding the efforts of the Public Printer to induce the Patent Office to edit its specifications properly before submitting them for printing, but little improvement has been made along that line. During the fiscal year 1931 the copy editors in the Government Printing Office were required to copy and insert in their proper places 11,761 amendments containing 20,818 lines in 44,579 patents before they could be handled by the typesetters and proofreaders.

A year ago the Public Printer offered to make a reduction of approximately \$50,000 annually in the charges for Patent Office printing if that office would prepare copy for specifications so that it could be handled in the same manner as other copy which is correctly prepared for printing. There has been an intimation that the Patent Office may undertake the work of editing its copy when more space is available in the new Commerce Building.

Patent specifications printed in the fiscal year 1931 contained a total of 163,071 type pages, a decrease of 12,976 pages from the preceding year. Of the 1931 specifications, 5,804,156 copies were printed at a cost of \$875,116.60, a decrease of \$75,307.41 from the charges for the fiscal year 1930. The weekly Gazette of the Patent Office contained 14,382 type pages and cost \$216,253 for its 296,853 copies in 1931.

POSTAL SERVICE IS A BIG CUSTOMER

Another customer high up in the million-dollar class for printing expenditures is the Post Office Department, which paid the Government Printing Office \$1,895,680.02 for work done during the fiscal year 1931. Even at that, the Post Office Department made an early start in its economies by reducing its 1931 printing expenditures \$218,930.42 under the cost of the preceding year. This decrease was due principally to the lessening demand for Government postal cards on account of the 1-cent rate for private cards.

The output of Government postal cards in the fiscal year 1931 was 14 per cent less than in the preceding year, the total number printed in 1931 being 1,485,384,120. However, the 1931 production of postal cards was 17 per cent greater than that for the year 1921. The greatest number ever printed in any one year was in 1927, when the output reached a total of 1,950,508,300 cards.

DECREASE IN MONEY-ORDER DEMANDS

For the first six months of the present fiscal year there has been a further decrease of approximately 70,000,000 in the number of postal cards printed as compared with the corresponding six months of the preceding fiscal year.

The demand for postal money orders continued to hold its own during the fiscal year 1931, when 1,060,127 books of 200 orders each were shipped to approximately 60,000 post offices throughout the United States. This was an increase of 4,815 money-order books for the year, but the number printed since July 1, 1931, has decreased 75,359 books as compared with the first six months of the preceding

fiscal year. The 1931 production of money-order books was 23 per cent greater than that for 1921.

Nearly half a billion other blank forms and cards were printed by the Government Printing Office in 1931 for the Postal Service. This work included 217,650,000 money-order application blanks, 154,799,190 registered, insured, and C. O. D. mail notices, 31,445,300 undeliverable-publication notices, 44,330,000 return-receipt cards, 20,085,000 registry-dispatch receipt cards, and 17,000,000 change-of-address slips.

Publications of the Post Office Department, including the Postal Guide, totaled 1,564,349 copies during the fiscal year 1931, a decrease of 452,927 copies from the preceding year.

A considerable amount of Postal Service printing is also done in the field for the use of the larger city post offices and the Railway Mail Service.

AGRICULTURE LEADS AS A PUBLISHER

First rank as a publisher is an easy honor of the Department of Agriculture, whose publications are about treble the number issued by any other department or establishment of the Government. The Department of Agriculture also qualified as a member of the million-dollar group of Government Printing Office customers, with printing orders totaling \$1,080,021.83 for the fiscal year 1931.

During the year 1931 there were printed 29,866,506 copies of Agriculture publications, including 12,246,218 Farmers' Bulletins, four-fifths of which are allotted by law to Members of Congress for free public distribution. The copies of Agriculture publications printed in 1931 decreased 6,868,340, or 19 per cent, from the total for the preceding fiscal year, nearly half of the decrease being in Farmers' Bulletins.

AGRICULTURE YEARBOOKS FOR CONGRESS

The Agriculture Yearbook for 1931 cost \$273,320.43 for its 400,619 copies, of which 380,138 were for free distribution by Members of Congress. To date the Superintendent of Documents has sold 756 copies at \$1.50 each. The edition of the Yearbook for 1931 cost \$23,104.02 more than that for 1930, owing to an increase in number of pages and copies. Copies of the 1931 Yearbook were available for distribution on May 11, 1931.

In connection with printing for the Department of Agriculture, the Government Printing Office rendered a special service which enabled the department to expedite its handling of the drought-relief loans. The speedy printing of the more than 4,000,000 forms required to start the drought relief was commended in the following letter which

the Secretary of Agriculture addressed to the Public Printer on January 29, 1931:

I am writing to express the appreciation of the Department of Agriculture for the very fine cooperation given by the Government Printing Office in the printing during the past few weeks of the regulations, application blanks, and other forms necessary for the handling of the drought-relief loans to be made by this department out of the \$45,000,000 appropriation of Congress.

The first copy for the form was sent to the Government Printing Office on January 3 and delivery was begun on January 7. Altogether there were 31 different forms, due to the fact that loans are being made from four field offices with somewhat different regulations at each of these offices, necessitating in some cases changes in the various forms. The total number of copies of all forms is in excess of 4,000,000, which gives a definite idea of the magnitude of the printing job done by your organization.

Recognizing the fact that this was a relief operation, the Government Printing Office has contributed by doing this job without making the extra charge usually required for rush printing.

OTHER PATRONS OF GOVERNMENT PRINTING

Other principal patrons of the Government Printing Office in the fiscal year 1931 were:

The Treasury Department, with a total payment of \$941,489.95 for its printing, which included 49,035,000 copies of the annual income-tax forms and 3,658,112 copies of departmental publications;

The Navy and War Departments, with expenditures of \$747,348.71 and \$684,459.76, respectively, for their peace-time publications, totaling together 13,157,548 copies;

The Department of the Interior, which expended \$388,336.84 for printing, including 2,065,768 copies of various publications;

The Department of Justice, with a total charge of \$341,234.17, an increase of \$76,586.99 over the preceding year on account of a growth in its publications from 78,931 to 531,426 copies, due to the printing activities of its newly acquired Prohibition Unit.

PUBLICATIONS FOR DEPARTMENT OF STATE

The Department of State, with a printing and binding charge of \$250,559.39, an increase of \$17,513.72, and 98,003 more copies of publications which totaled 963,309 for the year;

The Department of Labor, with a charge of \$239,644.20, which was \$39,369.64 less than for the preceding year, notwithstanding an increase of 39,521 in publication copies, totaling 1,854,971;

The Library of Congress, with a total charge of \$387,912.12, an increase of \$3,070.70, including work done by the branch printing and binding sections which the Government Printing Office main-

tains in the Library Building with a special force of 89 employees. During the year 25,163,943 copies of Library catalogue cards and 9,740 pages of its Catalogue of Copyright Entries were printed;

The Interstate Commerce Commission, with printing and binding charges of \$232,647.64, which included the cost of 2,074,368 copies of reports, docket, opinions, etc., an increase of 408,542, or 25 per cent more than were issued in preceding fiscal year;

The Veterans' Administration, with \$253,217.98 expended for millions of blank forms and letterheads; and

The Government of the District of Columbia, with an expenditure of \$97,662.89 for printing and binding and \$20,156.64 for blank paper.

ANNUAL REPORTS FOR 1930 COST LESS

The annual reports of all Government departments and establishments for 1930, which were printed in the fiscal year 1931, cost \$225,951.55, or \$7,951.44 less than reports for the preceding year. The annual reports for the fiscal year 1930 contained 21,484 type pages, an increase of 607 over the pages in the 1929 reports. The number of copies printed of the 1930 reports totaled 487,226, or 17,397 more than for the preceding year.

The annual reports for 1930 contained 37,456 fewer pages than the reports for 1920, the reduction being due to a provision in recent annual appropriation bills authorizing the discontinuance of the printing of annual or special reports, the original copy of which shall be kept on file in the office of the head of the respective department or independent establishment for public inspection.

MORE BLANK PAPER AND ENVELOPES

Included in the annual charges to the departments are purchases of blank paper and envelopes, which the Government Printing Office has been supplying in large quantities for the last seven years under authority of the act of June 7, 1924. The charges for blank paper and envelopes, including cost of stock and expense of cutting and packing, amounted to \$632,730.49 for the fiscal year 1931, an increase of \$10,389.14 over similar charges in 1930.

Approximately 2,500,000 pounds of the blank paper furnished to the departments and other establishments of the Government in 1931 were for use in mimeographing and multigraphing machines, indicating the vast amount of this form of printing which is not done at the Government Printing Office.

The stocking and supplying of standard forms and blank books for various branches of the Government service is another additional activity of the Government Printing Office that has developed into

a large business in the last few years. During the fiscal year 1931 there were issued from the Government Printing Office stock, 8,229,-301 copies of approximately 160 standard forms for Government use, 1,035,523 copies of Government freight transportation forms for railroad use, 301,565 stenographers' notebooks, 235,774 standard notebooks, and 813,970 standard memorandum pads.

STANDARD BLANK BOOKS AND SUPPLIES

The Government Printing Office catalogue of standard blank books and supplies lists 204 items which are carried in stock or obtainable by contract for delivery to other Government establishments in Washington. Sales of the catalogue items in the fiscal year 1931 amounted to \$170,886.29, of which \$90,091.61 was paid for 512,400 blank books manufactured by the Government Printing Office, \$2,445.88 for blank books obtained by contract, \$49,991.80 for tablets made and stocked by the Government Printing Office, and \$28,357 for inks, glues, paste, etc., also manufactured by the Government Printing Office.

These sales are authorized by Public Act No. 222 of the Sixty-ninth Congress, which provides that inks, glues, and other supplies manufactured by the Government Printing Office in connection with its own work may be sold to other Government establishments.

In regard to this special service, the Permanent Conference on Printing, in its report to the Director of the Bureau of the Budget for the year 1931, stated:

Standard stock books and tablets manufactured and carried in stock by the Public Printer are meeting practically all requirements of the Government service. Deliveries are being made promptly, and the unit price of the standard books is considerably below former cost prices.

NEARLY 1,500 CARLOADS OF MATERIALS

Approximately 57,500,000 pounds of materials and supplies, making nearly 1,500 carloads, were delivered to the Government Printing Office during the fiscal year 1931 to meet the requirements of its tremendous production of printing and binding and the needs of other establishments of the Government. The deliveries of paper alone amounted to 54,134,995 pounds. Practically all of this hauling was handled locally by the Government Printing Office fleet of 30 motor trucks.

It is interesting to observe the increase of motor-truck deliveries to the Government Printing Office from distant points. During the year more than 2,000,000 pounds of freight were delivered by motor trucks from Philadelphia, Baltimore, and Richmond.

The procurement of the immense quantity of equipment, material, and supplies bought during the year 1931 required the issue of 9,232 purchase requests, 19,880 open-market proposals, 8,813 purchase orders, and the posting of 189,000 stock-card entries, and 39,365 storekeeper's orders. The total purchases for the year amounted to \$4,857,963.56.

SUPERINTENDENT OF DOCUMENTS

Government publications delivered to the Superintendent of Documents in the fiscal year 1931 totaled 72,142,884 copies, which, added to the stock of 38,781,447 on hand July 1, 1930, made a total of 110,924,331 copies available for distribution during the year. Of this number, 71,941,308 copies were disposed of, leaving a balance of 38,983,023 in stock on July 1, 1931, a gain of 201,576.

The distribution of publications by the Superintendent of Documents in 1931 included 56,315,707 copies ordered by various departments of the Government for free service to the public, 8,607,247 sold by the Superintendent of Documents, and 1,966,469 sent to depository libraries. In addition, 5,669,784 copies of Government reports and documents were printed during the fiscal year 1931 for free distribution by Senators and Members through the document and folding rooms of Congress.

The sale of Government publications by the Superintendent of Documents in 1931 increased 28,655 copies over the number sold during the preceding fiscal year and was 1,976,105 more than in 1921.

SALES RECEIPTS FOR YEAR—\$701,597.80

Receipts from the 1931 sales amounted to \$701,597.80, a decrease of \$7,374.66 from the preceding year. However, the receipt from the sale of Government publications in 1931 was \$408,226.17 more than the income from that source in 1921, showing the great growth of this business in the last 10 years.

During the last fiscal year the Superintendent of Documents paid to the Public Printer the sum of \$720,600.38 for printing, which included 8,800,100 copies of publications ordered printed for sale and library distribution. By law, the cost of composition and plates is charged to the department originating the publication and not included in the price of sales copies.

The following statement by the Superintendent of Documents shows the number of copies on hand July 1, 1930, the number received and distributed during the fiscal year 1931, and the number on hand June 30, 1931, for various departments and establishments of the Government:

Department	On hand July 1, 1930	Received during year	Distributed during year	On hand June 30, 1931
Agriculture.....	17, 833, 152	29, 751, 183	31, 330, 708	16, 253, 627
American Historical Association.....	8, 560	5, 225	5, 973	7, 812
Civil Service.....	9, 593	3, 600	3, 009	10, 184
Commerce.....	5, 833, 967	7, 864, 582	7, 300, 088	6, 398, 461
Congress.....	541	1, 035	0	1, 576
Education.....	1, 004, 563	1, 543, 330	1, 482, 749	1, 065, 144
Employees' Compensation Commission.....	38, 750	11, 235	11, 513	38, 472
Ethnology.....	36, 599	26, 486	23, 666	39, 419
Federal Farm Board.....	293, 713	2, 452, 914	1, 607, 353	1, 139, 274
Federal Power Commission.....	6, 738	51, 096	3, 593	54, 331
Federal Reserve Board.....	23, 633	340, 871	332, 338	32, 166
Federal Trade Board.....	251, 266	60, 702	60, 926	251, 042
General Accounting Office.....	4, 932	1, 273	1, 385	4, 820
Geological Survey.....	164, 481	79, 068	74, 428	169, 121
Interior.....	323, 597	913, 531	867, 910	369, 218
Interstate Commerce Commission.....	794, 427	1, 417, 715	1, 373, 672	838, 470
Justice.....	129, 418	744, 186	574, 547	299, 057
Labor.....	2, 937, 841	2, 054, 132	2, 049, 701	2, 942, 272
Library of Congress.....	125, 362	18, 269	24, 036	119, 595
National Advisory Committee for Aeronautics.....	47, 113	5, 961	38, 740	14, 334
National Museum.....	92, 077	85, 292	81, 600	95, 769
Navy.....	22, 667	36, 154	55, 593	3, 228
Post Office.....	48, 893	7, 498, 316	7, 498, 828	48, 381
Public Health.....	2, 667, 718	1, 431, 319	1, 374, 406	2, 724, 631
Radio Commission.....	2, 083	200	2, 083	200
Shipping Board.....	11, 087	83, 220	77, 000	17, 307
Smithsonian Institution.....	57, 678	25, 341	27, 980	55, 039
State.....	1, 557			1, 557
Treasury.....	333, 770	1, 119, 753	1, 253, 472	200, 051
Veterans' Administration.....	350	1, 622		1, 972
War.....	17, 087	7, 494	13, 887	10, 694
Miscellaneous.....	82, 864	3, 245	2, 507	83, 602
Total.....	33, 206, 077	57, 638, 350	57, 553, 601	33, 290, 826

^a This total includes 1,237,894 copies of discarded obsolete publications, deducting which reduces the actual distribution for the year to 56,315,707 copies.

^b This total does not include 5,692,505 sales copies, adding which makes the number of all copies in stock June 30, 1931, total 38,983,331.

The sale of Government publications is almost entirely a mail-order business, except for the comparatively small number bought at the bookstore which the Superintendent of Documents operates at 45 G Street, the new extension of the Government Printing Office.

The mail orders for the fiscal year 1931 totaled 528,893, an increase of 20,493 over the orders received in 1930. For the month of March, 1931, there was a record-breaking average of more than 2,200 mail orders daily.

CREDITABLE CLEARANCE OF CHECKS

The financial reliability of the average American and his banker was well demonstrated in the clearance of all but 1 of the 141,056 bank checks received during the year in payment of \$566,923.74 for publications.

Although customers are continually warned that cash remittances are at their own risk, 154,085 letters were received during the year containing a total of \$62,125.59 in cash.

Besides the cash transactions, the Superintendent of Documents maintains 2,700 accounts with customers who keep funds on deposit

to cover their orders from time to time during the year. These cash-in-advance accounts total about \$40,000.

Another popular form of remittance is by coupons purchased in advance. Receipts from the sale of coupons in 1931 amounted to \$24,272.85.

In these various forms and by postage stamps and money orders, the gross receipts for the sale of publications in the fiscal year 1931 amounted to \$768,306.60, of which \$66,708.80 was refunded on unfilled orders or credited to a special Treasury account for future orders, making the net receipts for the year's sales total \$701,597.80.

PUBLICATIONS MAILED FOR DEPARTMENTS

Departmental distribution through the Superintendent of Documents, who has charge of the storing, wrapping, and mailing of practically all departmental publications, decreased 624,535 copies in the fiscal year 1931, principally on account of a reduction in the issue of Farmers' Bulletins. The 1931 distribution of 56,315,707 copies was 14,410,343 copies more than were mailed for the departments in the fiscal year 1921.

Mention has been made elsewhere in this report of the extensive distribution of Farmers' Bulletins issued by the Department of Agriculture and the large sales of publications issued by the Department of Commerce. It therefore seems proper to refer here to a number of publications widely distributed by other departments.

CHILDREN'S BUREAU A POPULAR AUTHOR

Among the most popular, both for free and sales distribution, are four pamphlets of the Children's Bureau, Department of Labor, entitled "Prenatal Care," "Infant Care," "Child Care," and "Child Management." Since the first one of these pamphlets was published in 1913, the distribution of the four pamphlets to date has reached a total of 12,826,193 copies, of which 2,616,345 were purchased by the public. Great quantities have been distributed by Members of Congress, to whom the Children's Bureau, on request, has made monthly allotments of 100 copies each of the pamphlet on "Infant Care."

Another publication in continuing demand is the Manual of First Aid Instructions for Miners, of which the Bureau of Mines has distributed 866,297 copies, and in addition, 185,304 copies have been sold by the Superintendent of Documents.

In the list of other publications of which more than 100,000 copies have been sold are the Public Health Service pamphlets, Wonderful Story of Life—A Mother's Talk with Her Daughter and A Father's Talk with His Son; an Agriculture Department report on Chemical

Composition of American Food Materials; a pocket edition of the Constitution of the United States; and The Story of the Declaration of Independence, of which 300 copies were also printed for each Senator and 150 copies for each Representative for free distribution.

FARM BOARD AN ACTIVE PUBLISHER

The Federal Farm Board has also developed rapidly into an active publisher with the printing of 2,767,754 copies of its bulletins and circulars in 1931 and 924,620 copies in the preceding fiscal year. Of these publications, 1,607,353 copies were distributed by the Superintendent of Documents during 1931 on order of the Farm Board.

The series of Farm Board bulletins include the following titles, "Fruit and Vegetables—Guide for Setting Up Local Cooperative Marketing Associations," "Practical Experiences in Feeding Wheat," "Farmers Build Their Marketing Machinery," "Outlook for American Cotton," and "Grain—A Guide for Organizing Local Cooperative Marketing Associations." One of its circulars, of which the Farm Board issued 200,000 copies, was entitled "Grow Less, Get More—Millions of Dollars and Hours of Work are Lost in Overproduction—Size of the Crop Depends Largely on Acreage Farmers Plant."

Prohibition is another subject for many Government publications. While under the Treasury Department, the Prohibition Unit issued approximately 770,000 copies of various prohibition law enforcement publications. Since its transfer to the Department of Justice, the Prohibition Unit has issued 451,875 copies of the following publications: "The Value of Law Observance," "State Cooperation," and "Alcohol, Hygiene, and the Public Schools."

DOCUMENTS FOR DEPOSITORY LIBRARIES

Government publications sent by the Superintendent of Documents to 498 designated depository libraries during the fiscal year 1931 totaled 1,966,469 copies, an increase of 31,310 over the preceding year and 545,542 more than were distributed to libraries in 1921.

It is worthy of consideration to note that during the fiscal year 1931, the depository libraries returned to the Superintendent of Documents 1,199,979 Government publications which evidently were no longer of service to their readers. Many of these discarded publications had been arbitrarily sent to the libraries prior to the legislation of 1922 which now permits depository libraries to make advance selections of Government publications desired to meet their respective needs. Unfortunately, however, there is also a gross waste in the present system of distribution to libraries.

During the last 10 years, 5,925,499 Government publications have been returned to the Superintendent of Documents by depository libraries throughout the United States. The great bulk of these discarded books are either obsolete or otherwise useless for further library service.

DEFECTS IN DISTRIBUTION TO LIBRARIES

Plans to remedy the present defects in the library distribution of Government publications have been discussed at several meetings of the public documents round table of the American Library Association, and special bills proposing changes in the method of designating depository libraries have been introduced in Congress; but, as yet, no suggestion appears to have sufficient merit to bring about remedial legislation.

Following renewed interest in the subject at the New Haven round table of the American Library Association, which the Superintendent of Documents addressed in June, 1931, the following resolution was adopted, and there the matter rests to date:

Voted, that the executive board instruct the committee on public documents to confer with other learned societies and organizations, such as the Social Science Research Council, American Council of Learned Societies, American Association of University Professors, etc., for the purpose of making a study of depositories for public documents.

QUESTIONS BY SUPERINTENDENT OF DOCUMENTS

In this connection, the Superintendent of Documents suggests the following questions for consideration before any further legislation relating to depository libraries is enacted by Congress:

1. Should the number of libraries be increased?
2. Should provisions be made for the same classes of special depositories as now provided by law such as the following: All State libraries; all Territorial libraries; libraries of the executive departments in Washington, D. C.; the libraries of the United States Military and Naval Academies; Alaska Historical Society Museum Library, Juneau, Alaska; the library of the Philippine Government; American Antiquarian Society Library, Worcester, Mass.; the libraries of the land-grant colleges?
3. Shall the Superintendent of Documents act independently in designation of libraries or should the responsibility for the selection and designation be placed upon Members of Congress, as now, or upon the State library commission or some other authorized body of the State?
4. Should the law specify the character of library eligible for designation, such as public, school, college, university, etc., or arrange for class of libraries to be determined by regulations?
5. Should the law include specific requirements for designation or should this be handled by regulations?

6. If class of library determined on as eligible for a depository does not include all that are now on the list, should the law provide for their being continued as a depository?

7. Should the law prescribe how the libraries are to be apportioned among the various States and Territories?

8. Should the distribution be on a population or a geographical basis?

9. Should Congress be asked to provide funds for the investigation of libraries by an agency of the Government, or should such investigation to determine their fitness or whether their publications are available for free, public use be left to some State organization?

TREMENDOUS WASTE OF PUBLICATIONS

Libraries are not the only places from whence come the avalanche of obsolete and unserviceable publications which have to be disposed of as waste paper to make room for the incoming millions of newer publications that fill to overflowing the 100,000 square feet of storage space in the Government Printing Office. During the last 10 years, 10,503,405 copies of publications ordered by the various departments and establishments of the Government for official use or free distribution have failed of that purpose and have been sold as waste paper. In the same period, 7,470,935 copies of publications available for sale by the Superintendent of Documents have likewise become obsolete or otherwise unsalable.

These useless publications, mostly pamphlets, added to the 5,925,499 returned by depository libraries, make the total waste of publications recorded by the Government Printing Office during the last 10 years amount to 23,899,839 copies, the printing and handling of which cost the Government much more than a million dollars.

DISTRIBUTION BY MEMBERS OF CONGRESS

In addition, there has been a great waste in the thousands of publications annually allotted to Members of Congress regardless of the special needs of their respective States or districts. A number of years ago, the Senate and House folding rooms sold as waste paper approximately 2,000,000 publications that had never been removed from their wrappers. Undoubtedly, tons of other useless publications are now stored in and about the Capitol.

Several plans have been proposed in Congress from time to time to stop this waste over which the Government Printing Office has no control. One suggestion, which received favorable consideration in first one House and then the other during different Congresses but failed of further action, was the so-called "valuation plan," based on an ascertainment that the reprint value of publications, exclusive of

the Congressional Record, then allotted to Senators was approximately \$2,200 and to Representatives \$1,800 annually. The bill proposed to allot such sums as book credits for the ordering of publications of special interest to the respective constituents of Members of Congress in lieu of the prevailing quota system of distribution.

The reprint value of congressional quotas of publications, which now consist principally of Agricultural Yearbooks and departmental reports, was reduced somewhat several years ago by discontinuing the quotas of certain publications of the Geological Survey, the Bureau of Fisheries, the Naval Observatory, the Bureau of Ethnology, and the National Academy of Sciences which were deemed to be of little use for congressional distribution.

EXCHANGE OF DOCUMENTS PROPOSED

A subsequent plan to improve congressional distribution, which failed to get beyond the introductory stage, proposed to continue the present allotments but authorized Members to exchange their quotas for other Government publications of equal value which they could obtain from the Superintendent of Documents. It was estimated that this exchange system would not increase the cost of congressional printing and would reduce the present waste of publications in the folding rooms of Congress and in the stock of the Superintendent of Documents. Notices of proposed exchange were required in advance of printing the regular allotments to prevent an excess of the quota publications.

The exchange system, as proposed, left it optional with a Member of Congress whether his publications were to be distributed through the folding rooms of Congress or by the Superintendent of Documents.

LIMITED EXCHANGE WITH MEMBERS

To a limited extent, the Superintendent of Documents has accommodated Members of Congress for a number of years by exchange of publications of mutual service, but this arrangement has necessarily been quite restricted, as comparatively few of the publications allotted to Members of Congress are of any sales value to the Superintendent of Documents. During the past year there were 767 such exchange transactions with Members of Congress, the publications involved representing a book credit of \$2,828.49 available only in trade for other Government publications.

Another and more effective remedy for the great waste of Government publications would be the abolishment of free distribution by

Congress and the departments in lieu of which there would be an extension of sales by the Superintendent of Documents. Even in competition with the extensive free distribution of many Government publications, the sales are constantly increasing, amounting last year to more than \$700,000. Undoubtedly, if free copies were not to be had, the sales would soon double or triple that sum to the benefit of the public Treasury and the corresponding relief of Government expenditures for printing and binding.

Inasmuch as the selling price of Government publications does not include the cost of the composition paid by the ordering offices, the charge to the individual purchaser is only sufficient to assure his proper interest in the publication and thus prevent the present great waste through free distribution.

LEGISLATION NEEDED TO PROMOTE SALES

Legislation to stimulate further the sale of Government publications and to aid the Superintendent of Documents in the disposal of his vast stock of Government publications was proposed by the Public Printer in his annual report for 1929 and has also been recommended by the Permanent Conference on Printing, an agency of the Bureau of the Budget.

The suggested legislation authorizes the Public Printer to encourage the sale of Government publications by allowing dealers a trade discount so as to remunerate them for their expenses in this added service to the public, and yet requires them to adhere to the sale prices fixed upon by the Superintendent of Documents. This is a method by which several foreign governments permit extensive sales of their publications by book dealers. In fact, no foreign government indulges to any extent in the free distribution of its publications.

FIELD OFFICERS TO ACT AS SALES AGENTS

The sales plan proposed by the Public Printer also provides that the Superintendent of Documents may designate any Government officer as his agent for the sale of Government publications, as agreed upon by the Public Printer and the head of the respective department or establishment of the Government. Thus, if agreeable to the heads of other departments, a large number of Government representatives throughout the United States, such as postmasters and field officers of the several departments, especially those of Agriculture, Commerce, and Labor, could receive orders and payments for Government publications and thereby greatly facilitate their delivery to the public.

Lacking funds for advertising the sale of Government publications, the Superintendent of Documents could thus be provided with other means to market his stock of publications through private dealers and Government agents.

At the present time the only opportunities to acquaint the public with the publications available for sale by the Superintendent of Documents are by occasional notices in Government periodicals, price quotations in the respective publications, and the distribution of price lists, of which 1,051,829 copies were issued during the past year.

SALES INCREASED BY RECENT CRITICISMS

Sometimes newspaper comments, whether favorable or unfavorable, help stimulate the sales of Government publications. For instance, a recent article in a Chicago newspaper concerning the multitude of Government publications, some of which were criticized as "horrible examples of extravagance," resulted in a number of orders for those publications. One cash customer wrote that the newspaper article was the first information he had that the Government was issuing publications of particular interest to him.

With additional agencies established throughout the country for the sale of Government publications, the income from this source would undoubtedly be greatly increased and the present waste of unused publications largely prevented, thereby turning long-continued losses into permanent future profits and materially reducing the cost to the Government of its necessary printing.

DOCUMENTS DIVISION IN NEW LOCATION

With the additional space and facilities made available by the completion of the G Street extension, the Documents Division is in better condition than ever for handling the increasing sales of Government publications. The administrative, financial, reference, bookkeeping, procurement, stock recording, and correspondence sections, consisting of 153 employees, occupy the entire sixth floor of the new extension, which has been completely equipped with metal desks, chairs, and filing cases of substantial design.

The addressing, wrapping, and mailing-list sections have been moved from the old building into more suitable quarters formerly occupied by the clerical sections in the H Street Documents building. Better space has also been provided in the old building for the receiving and shipping sections, including the special unit for the distribution of Farmers' Bulletins and current publications. This

part of the work requires the services of 183 employees in addition to the above-mentioned clerical staff.

The moving of other activities to the G Street extension has also provided 29,045 square feet of additional space in the old building for storing the regular stock of more than 38,000,000 publications. There is now available for that purpose approximately 100,000 square feet of floor space, which has made possible a complete and much-needed rearrangement of the stock and more careful storing of the publications.

NEW SALESROOM FOR PUBLICATIONS

Another improvement is the well-equipped and conveniently located public salesroom on the first floor of the new extension at 45 G Street NW. The salesroom is connected with the stock rooms by an automatic elevator and belt conveyor 270 feet in length, running to the fifth floor of the old H Street building. By means of this conveyor, publications can be delivered to the salesroom in less than five minutes.

The salesroom is attractively furnished with display cabinets and tables, and has several bookstacks for storing more active sales stock. The salesroom is open to the public from 9 a. m. to 4 p. m. each week day and already has a daily average of nearly 100 patrons. It is serving also as a bureau of information of Government publications and activities.

CATALOGUING AND LIBRARY SECTIONS

Another major activity under the direction of the Superintendent of Documents is the cataloguing and listing of all Government publications, in connection with which there is maintained the largest and most complete library of Government publications. An inventory as of July, 1931, shows that this library contained 495,723 Government publications and 35,781 maps, making a total of 531,504 entries, all of which are carefully safeguarded in metal bookstacks in a fireproof building.

The bookstacks occupy 3,990 square feet of space on the seventh floor of the new G Street extension, where also are located 36 employees of the catalogue and library sections. The stacks are built in two tiers, with a deck of white marble supported by structural steel framing. There are in each tier 20 rows of 2-faced stacks with 10-inch shelves, and at each end a row of single-faced stacks with 18-inch shelves. The two tiers contain 4,690 three-foot shelves and are sufficient to store Government publications for many years to come.

In the last eight years five great catalogues of all the publications issued by the Government during the periods of the Sixty-fourth to Sixty-eighth Congresses, inclusive (1917-1925), have been completed by the expert cataloguers in the office of the Superintendent of Documents. The Document Catalogue for the Sixty-ninth Congress (1927-1929) is now being printed, and the compilation of the catalogue for the Seventieth Congress (1929-1931) will be completed about July 1, 1932, which will then make current, for the first time in 20 years, this stupendous task of cataloguing.

STATUS OF THE DOCUMENT CATALOGUES

If the present schedule, which the Public Printer has insisted upon, is adhered to in the future, the Document Catalogue for the preceding Congress will be printed during the first session of each succeeding Congress; thus, the catalogue for the Seventy-first Congress will be completed before time to assemble cards for printing the catalogue of the Seventy-second Congress.

The following record shows the size and status of the Document Catalogues compiled in the last 10 years:

Sixty-fourth Congress, 2,429 pages, 56,500 cards; printed January, 1923.
Sixty-fifth Congress, 2,706 pages, 60,317 cards; printed September, 1926.
Sixty-sixth Congress, 2,422 pages, 53,810 cards; printed November, 1929.
Sixty-seventh Congress, 2,403 pages, 52,955 cards; printed January, 1931.
Sixty-eighth Congress, 2,303 pages, 51,732 cards; printed August, 1931.
Sixty-ninth Congress, 53,899 cards; printing in progress.
Seventieth Congress, preparation of cards in progress.
Seventy-first Congress, in progress.

With the completion of the Document Catalogue for the Seventy-first Congress, the set of catalogues listing all Government publications from 1774 to 1931 will consist of 23 royal octavo volumes containing approximately 38,900 pages.

SESSION INDEX AND WEEKLY LIST

The consolidated index of the documents and reports for the third session of the Seventy-first Congress was printed prior to the opening of the present session.

A Weekly List of United States Government Publications is also issued by the Superintendent of Documents to furnish current information to libraries and others interested in Government publications. The Weekly List was established by the Public Printer in 1928 in response to urgent requests from libraries throughout the United States. It is also of great service in promoting the sale of publications. An edition of 10,000 copies is distributed weekly.

TESTS AND TECHNICAL CONTROL

The Division of Tests and Technical Control is now occupying its new quarters in the G Street extension to the main building, where the entire fifth floor, with 14,715 square feet of space, has been especially equipped for the extensive laboratory and the ink, press-roller, and glue sections. Ample rooms are also provided for offices, library, files, conferences, and research associates. Including the ink, roller, glue, and metal sections, the Technical Division has 40 employees on its rolls.

Following is a description of the equipment in the various rooms of the Technical Division:

In the microscopical laboratory the equipment was designed for the microscopical analysis of paper and similar products. There are two sets of projection apparatus by which paper fibers may be studied without eyestrain. Two binocular microscopes are used for comparative work. A stone-top table equipped with 500-watt daylight lamp is used for comparison of color and examination for dirt of deliveries of paper. One laboratory table is used in making the stains for analytical work.

PHOTOMICROGRAPH ROOM IN LABORATORY

In the photomicrograph room is kept the micrometallurgical equipment. This room is also used as a dark room. The equipment includes both inverted microscope for metallurgical work and the usual type of microscope for the examination of transparent material. These two microscopes are interchangeable on the optical bench of the photomicrograph equipment.

In the paper chemical laboratory are two Cornell-type hoods, two 12-foot double laboratory tables and storage cabinets in addition to balance table, electric muffle, drying oven, paper grinder, and other chemical equipment. Paper, textiles, and other materials, the chemical analyses of which are affected by the presence of appreciable amounts of acid and alkali in the atmosphere, are analyzed in this room.

Adjoining the paper chemical laboratory are two insulated rooms in which the relative humidity and constant temperature are controlled within close limits. The control equipment is located in a small room between the two insulated rooms.

Physical tests are made on paper and paper products in the large humidity room, which measures 15 by 36 feet. Atmospheric conditions in this room are maintained at 70° F. and 50 per cent relative

humidity. The testing equipment consists principally of 7 folding-endurance testers, 5 bursting-strength testers, a tensile-strength tester, a paper scale, and a paper surface tester.

The atmospheric conditions in the smaller humidity room, which is 15 by 15 feet in size, are usually maintained at 70° F. and 65 per cent relative humidity, the standard conditions for textile testing. The equipment is designed to permit the maintenance of the relative humidity at any desired point between 40 and 65 per cent if desired for any special tests. This room is completely equipped for making physical tests on textiles used in the printing and binding industry.

LABORATORY FOR METAL ANALYSIS

The metal analysis laboratory contains two 12-foot laboratory tables, storage cabinets, and two hoods. The latter are the usual laboratory type as considerable acid is used in metal analysis. One hood and one table are fitted up especially for routine type-metal analyses. The other laboratory table and hood are used in testing miscellaneous supplies. An electrolytic cabinet for the analysis of nickel and copper and a balance table with two balances complete the equipment of this room.

A combined washroom and storage room for chemical glassware adjoins the metal analysis laboratory.

The general research room is equipped with two 12-foot laboratory tables, one hood, a number of storage cabinets, and a balance table. This room is designed for research work so that the apparatus need not be disturbed for routine testing. The equipment consists of centrifuges, electric oven, fadeometer, proof press, balances, and a considerable amount of other physical and chemical testing apparatus.

EXPERIMENTAL ELECTROTYPING PLANT

One room adjoining the general research laboratory contains the experimental electrotyping plant and another room is equipped with gasoline, lubricant, and glue testing apparatus. The electrotyping equipment consists of a generator for 500 amperes and 6 volts or 250 amperes and 12 volts, together with the necessary control panels, depositing tanks, and sinks for the study of electrotyping processes.

Routine control of ink manufacture and part of the research work on ink are conducted in a special room which also adjoins the general research laboratory. This room is equipped with a laboratory table, storage cabinets, and apparatus used in testing ink-making materials. A small mill has been placed in the ink plant for use in grinding experimental inks.

All the new laboratory furniture, except that in the constant temperature and humidity rooms, is made of corrosion resistant enameled steel with soapstone tops and sinks. All service wiring and piping is concealed. The office furniture is also metal.

The report of the Technical Director submitted herewith shows in detail the work of the Division of Tests and Technical Control during the fiscal year 1931.

TESTS AND REJECTIONS DURING YEAR

The routine tasks included the testing of 8,050 representative samples of all materials purchased by the Government Printing Office during the year, such as paper, envelopes, textiles, leathers, metals, glues, inks, ink-making materials, oils, greases, gasoline, and chemicals.

Rejections for noncompliance with Government specifications totaled 425, an increase of 42 over the rejections in 1930, although there were 368 fewer inspection tests in 1931. Of the rejections, 334 were of paper stock and 62 of envelopes. The rejection of envelopes was unusually heavy, but was confined to a few large deliveries of unsatisfactory kraft stock.

Special work was done by the Technical Division during the year on the determination of paper acidity, the deterioration of sulphite papers, and studies of binders board, kraft paper, tabulating cards, envelopes, glucose-glycol paste, bronze stamping leaf, electrotpe backing metals, stereotype metals, copper and nickel electrotpe methods and equipment, chromium plating, photo-engraving supplies, printing inks, press rollers, molded glues, detergents, and carbon motor brushes. A special study was made of the relation of news ink and newsprint paper.

PRODUCTS OF INK-MAKING SECTION

The ink-making section produced 185,885 pounds of printing inks during the fiscal year 1931, an increase of 7,628 pounds over the preceding year. Included in this production was 45,739 pounds of mimeograph ink, mostly for departmental use, an increase of 13,608 pounds for the year.

Other products of the ink section during the year were 14,400 quarts of writing inks, an increase of 2,200 quarts, and 1,928 quarts of ruling inks.

The roller and glue section made 2,698 press rollers, containing 20,987 pounds of composition, in the fiscal year 1931. The increase over the preceding year was 373 rollers, including 147 supplied to other departments of the Government.

The section also manufactured 83,957 pounds of molded bindery glue and tablet composition, including 48,340 pounds of flexible glue.

The metal section, located on the seventh floor of the main building, corrected 8,074,000 pounds of linotype, monotype, stereotype, and electrototype-backing metals during the year, a decrease of 662,000 pounds from the amount of metal corrected in 1930. The corrections with antimony, tin, and lead alloys added 142,577 pounds to the remelted metals. The loss due to drossing was 59,069 pounds, making a net gain of 83,508 pounds in the total stock of metal. In addition, 15,500 pounds of linotype and 200,000 pounds of electrototype-backing metals were obtained in commercial exchange for old electrototype plates.

In addition to producing inks and glues for its own use, the Government Printing Office manufactured approximately 50,000 pounds of printing inks and 12,000 quarts of writing inks for use by various other establishments of the Government. Approximately 15,000 pounds of glue, paste, and roller composition were supplied to other branches of the Government service.

TECHNICAL ASSISTANCE AND COOPERATION

Other technical assistance was rendered to various departments and establishments of the Government, and considerable cooperative work was undertaken with the Bureau of Standards of the Department of Commerce, and the Bureau of Chemistry and Soils of the Department of Agriculture.

The Employing Bookbinders of America and the American Newspaper Publishers Association have continued their employment of special research associates to assist in the study of problems of mutual interest with the Technical Division of the Government Printing Office. Several other organizations of the printing industry, including the United Typothetæ of America, the International Association of Electrotypers, and the Lithographic Technical Foundation, have also maintained contact during the year through frequent conferences with the Technical Director.

OTHER ACTIVITIES OF TECHNICAL DIRECTOR

The extent of the activities of the Government Printing Office in scientific research and standardization work relating to the various branches of the printing industry is further shown by the following committee memberships which have been added to the duties of the Technical Director in connection with the regular work of the Government Printing Office:

Paper specifications committee of the congressional Joint Committee on Printing;

Federal Specifications Board, United States Bureau of the Budget;

Pulp and paper committee, Printing Industries Division, American Society of Mechanical Engineers;

Paper testing committee, and chairman of the subcommittee on ink resistance of printing papers, Technical Association of the Pulp and Paper Industry;

Advisory committee on lithograph papers for the Lithographic Technical Foundation;

Advisory committee on permanent papers for the National Research Council; and

Standards Council of the American Standards Association.

Other helpful relations with trade and technical organizations are also maintained by the Public Printer who is an advisory associate of the executive committee of the Printing Industries Division, American Society of Mechanical Engineers; member of its survey and research committee; member of the standardization committee of the United Typothetae of America; and honorary member of the Printing Industries Research Association of Great Britain.

EMPLOYING BOOKBINDERS OF AMERICA

The research associate of the Employing Bookbinders of America, Mr. F. R. Blayloch, in his report to the recent annual convention of that organization, gave detailed information concerning the following work that is being done in cooperation with the Government Printing Office:

Testing various materials used by the bookbinding industry, including binders' board, book cloths, pyroxylin products, leathers, glues, pastes, bronze leaf, end papers, cordage, sewing threads, etc.;

Preparing formulas for glucose-glycol paste, flour paste, and leather preservatives;

Studying the durability of bookbinding leathers, leather substitutes, the tarnish-resisting qualities of bronze leaf, and a method of preventing the "silverfish" or "slicker" bug from attacking books.

MEMBERS RELYING UPON RESEARCH WORK

The research division of the Employing Bookbinders of America, according to the report of its associate, "has come to be a clearing house for technical information for this association." The report also states:

The members of the association are relying upon it more and more to solve problems connected with the industry. Firms outside the association are becoming interested in our work and are using the improvements that we have made whenever they can be applied to their field. Various manufacturers of bookbinding material have become interested in the work and have offered their assistance.

In appreciation of the service rendered the bookbinding industry, the following message was addressed to the Public Printer by Judge

A. E. Ommen, counsel for the Employing Bookbinders of America, under date of May 15, 1931:

Executive committee, Employing Bookbinders of America, meeting at Statler Hotel, Buffalo, have asked me to convey to you their sincere appreciation of the fine spirit that has always been shown by you and those under you in so generously aiding in every way solution of many problems of bookbinding industry.

Good progress has been made in the cooperative research work with the Mechanical Department of the American Newspaper Publishers Association relating to type metals, news ink, and newsprint paper. As stated by the general manager of the A. N. P. A., Mr. L. B. Palmer, of Cleveland, in a report to the Los Angeles meeting of the association on November 11, 1931:

One of the staff of the mechanical department spends his entire time at the Government Printing Office at Washington cooperating with that office in the study of ink and paper problems, and this work has resulted in great economies.

REPORT TO THE NEWSPAPER ASSOCIATION

At the same meeting the manager of the A. N. P. A. Mechanical Department, Mr. W. E. Wines, said in his report:

I will touch briefly on the work at the Government Printing Office by saying there has been practically nothing in print on the subject of type metals. Two or three years ago we started an investigation on the deterioration of type metals, and we have issued several bulletins on that subject. I believe we have issued almost the only and certainly the best information in print on the subject of type metals.

In our study of ink and paper, which is a much more complicated problem, we are making progress, and two members who have taken advantage of this service and used some of the results obtained from that study have had good results. One has been able, by checking his ink with the analysis of the laboratory at Washington and the results of the pressroom, to use an ink at a little lower price, which he reports is saving him about \$4,500 a year.

BETTER INK RESULTS FROM LABORATORY TESTS

Another member changed his source of ink supply. He bought a carload. When the carload was used, he ordered another one. The pressman complained the ink was not satisfactory. The superintendent didn't know whether the pressman was right or wrong, but fortunately he had saved a sample of the first shipment. He sent this sample to our man at Washington and the report came back that the second shipment was not equal to the first. Then he took it up with the ink manufacturer and, of course, the representative of the ink company told him a fairy tale about this and that—maybe it was the heat, and the ink was just the same; there must be something wrong in the pressroom. This member pulled out the report. There wasn't any going back on the report.

The result was the ink company sent his man to Washington to check up with our man and our member ordered a third car of ink. The pressman ceased to complain and the laboratory check-up showed the third carload was better than the first, all at the same price.

The following letter, dated October 14, 1931, from the superintendent of a large city newspaper, is also of interest in connection with the foregoing statement about ink:

Our records indicated that we were paying 10 per cent less for ink now than prevailed a year ago, but that our cost per thousand 8-page papers was 5 per cent greater due to less coverage of the present ink.

I called this situation to the attention of Mr. Wehmhoff and he furnished me with two draw outs of 1929 and 1931 inks which they had evidently kept on file there. It is quite apparent that our present ink is weak in color compared with the ink previously used and this is certainly strong evidence to place before the concern supplying us.

In my opinion the Government Printing Office can be of great help to the publishers if they will only take advantage of the services available there.

I am taking the liberty of sending a copy of this letter to Mr. Wehmhoff to let him know we appreciate the cooperation he is giving us.

NEWSPAPER MECHANICAL CONFERENCE

In furtherance of the cooperation between the American Newspaper Publishers Association and the Government Printing Office, the Fifth Mechanical Conference of that association was held in Harding Hall of the Government Printing Office on June 1, 2, and 3, 1931. This meeting was attended by about 200 mechanical superintendents of newspapers representing 70 cities in 25 states. Besides attending the conference programs, the visitors spent considerable time inspecting the Government Printing Office and observing especially the work of the Technical Division and its laboratory.

The opening discussion of the conference under the chairmanship of Mr. W. E. Wines, manager of the A. N. P. A. Mechanical Department, was the presentation by the Technical Director of the Government Printing Office, Mr. B. L. Wehmhoff, of a progress report on the study of news ink and newsprint by the Division of Tests and Technical Control and the research associate of the A. N. P. A., Mr. D. H. Boyce. Mr. D. P. Clark, associate chemist, Government Printing Office, also assisted in the preparation of this report.

REPORT ON NEWS INK AND NEWSPRINT

The report on news ink and newsprint covered the following points intended to aid in the production of better newspaper printing: Strike through, show through, flying ink, offset, toners, oil stains, carbon black versus lampblack, grinding of news ink, surface tension measurements, factors influencing printing qualities of news ink, effect of varying percentage of sulphite pulp in newsprint, and methods of analysis of news ink.

For study in preparing the report on the effect of varying the percentage of sulphite pulp, the Bureau of Standards produced on its experimental paper-making machine several rolls of newsprint containing 20, 40, and 60 per cent of unbleached sulphite, and 20, 40, and 60 per cent of bleached sulphite with ground-wood remainders, and sample rolls of 100 per cent ground-wood paper. No rosin size was used, but 10 pounds of alum per ton of pulp was added.

TESTS OF EXPERIMENTAL NEWSPRINT

The following conclusions were drawn from the physical tests on these samples:

1. Increase in the percentage of sulphite pulp increases the tensile and bursting strength of newsprint, but bleached sulphite does not increase the strength to the same extent as unbleached sulphite pulp.
2. Increase in the percentage of sulphite pulp apparently increases the basis weight for a given thickness.
3. Increase in the percentage of sulphite pulp decreases the ash content of the paper, although the ash content is higher when bleached pulp is used than is the case if unbleached pulp is used.
4. The opacity of paper decreases as the percentage of sulphite pulp increases. Ground-wood pulp is most opaque, unbleached sulphite next, and bleached sulphite most transparent.
5. The gloss of the paper increases slightly with the increase in percentage of sulphite pulp. Bleached sulphite yields a lower gloss than corresponding amounts of unbleached sulphite pulp.

The report also stated that 14 samples of news ink and 38 samples of newsprint paper were received from members of the association for special tests during the year and that 53 samples of ink were made in the laboratory for research purposes.

PAPERS DISCUSSED AT CONFERENCE

Other papers presented and discussed were:

Newspaper Composing Room Operations and Cost, by Mr. T. F. McPherson, newspaper analyst and economist. The chairman of this session was Mr. Arthur H. Burns, mechanical superintendent, New York Herald-Tribune.

Problems of Dry Mat Manufacture, by Mr. Jackson Townsend, president Wood Flong Corporation. The chairman of this session was Mr. John W. Park, production manager, Chicago Tribune.

Pressroom Topics. The chairman of this session was Mr. Timothy P. Beacom, general mechanical superintendent, Hearst newspapers.

Photo-engraving and Miscellaneous Topics. The chairman of this session was Mr. Frederick H. Keefe, publisher Newburgh News.

Work of the Joint Committee on Newspaper Printing, by Mr. F. H. Keefe, Newburgh News, chairman of the joint committee, and Mr. F. R. Gamble, executive secretary of the American Association of Advertising Agencies. The chairman of this session, Mr. Rudolph E. Lent, business manager Jersey Journal, stated:

Mr. Wines, the manager of the A. N. P. A. Mechanical Department, is entitled to credit for the way in which he has enlisted the cooperation of the Government Printing Office and the Bureau of Standards in meeting and solving the problems we are here to discuss.

In approving the work of the joint committee, the conference adopted the following resolutions:

Resolved, That the A. N. P. A. Mechanical Department considers the continuance of its efforts along the lines which have resulted in marked improvement in newspaper printing to be one of its important functions; and therefore, as another means of further improving newspaper printing conditions, it favors the use of electrotypes in preference to mats in newspaper advertising production; and also favors, when mats are utilized instead of electrotypes, the use of mats produced under wet-mat manufacturing conditions.

Resolved, That the Mechanical Conference of the American Newspaper Publishers Association favors and recommends the adoption of 0.105 inch as the standard of thickness for advertising electrotype plates for black and white printing; and further recommends that electrotypes for advertising in colors be made to a thickness of 0.154 inch.

MECHANICAL CONFERENCE IS COMMENDED

In commending editorially the A. N. P. A. Mechanical Conference at the Government Printing Office, the Editor & Publisher (New York) stated:

Progress that is undoubtedly being made toward discrimination in the choice of materials and in the technical education of operators is in large measure due to the mechanical department of the A. N. P. A. In its comparatively brief existence it has sought and obtained much information absolutely free from the commercial bias which had marked practically all of the technical data of earlier days. * * * Its research in conjunction with the great Government Printing Office has given a far wider base for investigation of materials and technique than could be attained in the best newspaper plant. Its findings have concentrated attention of paper mills and publishers alike on many neglected phases of newsprint manufacture and use. * * *

The comparatively few manufacturing industries which pool their mechanical department information and intelligence have expanded rather than limited this activity, even in times of depression—evidence that its cost is returned, and more, in dividends. That the publishing industry can do likewise is also evidenced by the very tangible results that have been achieved during the short, and so far largely experimental career of the A. N. P. A. mechanical department. It is no rash prophecy that an important future lies before this phase of cooperative publishing efforts.

PRINTING INDUSTRIES CONFERENCE

Another Government Printing Office conference of nation-wide and international interest was the gathering in Harding Hall on March 16 and 17 of several hundred technical experts in the printing industry under the sponsorship of the Printing Industries Division of the American Society of Mechanical Engineers, with the United Typothetæ of America and the Government Printing Office as joint hosts.

The registration list shows the attendance of 374 printing experts and engineers from all parts of the United States and Canada. Many other participants failed to register. There was no restriction on attendance, all interested being invited to participate in the discussions.

All of the formal sessions were held in the auditorium of the Government Printing Office, where also a number of group conferences on standardization projects were held in rooms specially provided for that purpose. The entire eighth floor of the new extension was suitably arranged and decorated as an exhibition hall for the large display and demonstration by manufacturers of printing equipment of special interest to the conference.

One evening a dinner meeting was held in Harding Hall with Mr. L. W. Wallace, executive secretary American Engineering Council, as toastmaster.

CHAIRMAN STATES CONFERENCE PURPOSE

The opening session of the conference was presided over by its directing chairman, Mr. Edward Pierce Hulse, of New York, chairman of the Printing Industries Division of the A. S. M. E., who stated its purpose in part, as follows:

This is the second time that the technical experts of the printing industry, representing all of the organizations and associations in the industry, have met in conference. These are the key men on whom rests the responsibility of manufacturing and of keeping in successful operation the machinery and equipment of the industry and of counseling on methods for the industry.

At the first conference, held over a year ago in Pittsburgh, the talk was all on research—the papers were all on the need for developing research in the printing industry. The leading experts from great plants in other countries were there; we heard from our own distinguished leaders in the newspaper, magazine, and general printing fields; all branches of the industry were covered, as lithography, photo-engraving, electrotyping and stereotyping, bookbinding, ink making, paper making, metal making, etc. The need for the research that has been found so valuable in other industries was fully discussed.

This second conference will hear of some of the results of research—of some of the processes and machines that have resulted or that have been further developed in the year from the application of research.

In any manufacturing plant there are three factors that are highly important—equipment, management, and technical knowledge.

Research is the gateway through which all problems should be approached, and we in this second conference are to hear some of the recent results of research. This is a mechanical age and it also is becoming a chemical age.

The owner and the operator of a printing plant must know nowadays the chemistry of the business, as well as the mechanics. To-day's practice needs more rapid vehicles for its dissemination, such as are found in the technical meeting and the technical journal—in meetings such as this, with the information in these valuable addresses published and distributed through the medium of the trade publications. Technical meetings and technical addresses are valuable, but if all this information can be got over the fence of the association or society meeting and spread to the industry, its value is multiplied a hundred-fold.

It is pleasing to see so many here—representatives of all of the great branches of the industry. It is the interest in such movements as this, with the promise of helpfulness to the industry, that is going to open the gateway to prosperity and aid in putting this great industry in its proper place among the great and prosperous industries of the Nation.

PRESENTATION OF CONFERENCE CHAIRMEN

Following the address of Mr. Hulse came the introduction of the honorary chairmen of the conference:

George H. Carter, the Public Printer of the United States, Washington, D. C.;

John J. Deviny, secretary the United Typothetæ of America, Washington, D. C.; and

Prof. George A. Stetson, editor Mechanical Engineering, New York, N. Y.

Then the work of the conference was briefly outlined by the general chairman, Mr. Alfred E. Hanson, Superintendent of Construction and Maintenance of the Government Printing Office. He presented the following vice chairmen, in charge of special activities as designated:

William D. Hall, director Department of Production Management, United Typothetæ of America, Washington, D. C. (in charge of the four group conferences on standardization projects);

Floyd E. Wilder, manufacturing director of Hearst publications, chairman of the pangraphic committee, Printing Industries Division, A. S. M. E. (giving leadership to participation of the cooperating organizations);

B. L. Wehmhoff, Technical Director, Government Printing Office, Washington, D. C. (in charge of inspection of the plant and laboratory); and

William D. Skeen, vice president of the Cafeteria and Recreation Association, Government Printing Office, Washington, D. C. (in charge of dinner and entertainment).

The formal program was as follows:

MONDAY MORNING, MARCH 16, 1931

Chairman, John Clyde Oswald, managing director New York Employing Printers' Association, member of executive committee, Printing Industries Division, A. S. M. E., New York, N. Y.

Presiding officer, William Clement Glass, U. P. M.-Kidder Press Co., member of executive committee, Printing Industries Division, A. S. M. E., New York, N. Y.

Air Conditions for Printing, by Willis H. Carrier, president American Society of Heating and Ventilating Engineers, Newark, N. J.

Prepared discussions on the engineering construction and operation of specific machines or systems, by:

Frederic F. Bahnson, the Bahnson Co., Winston-Salem, N. C.

R. T. Williams, Carrier Engineering Corporation, New York, N. Y.

B. Offen, B. Offen & Co., Chicago, Ill.

R. H. Brown, Parks-Cramer Co., Boston, Mass.

G. A. D'Arcy, Rhode Island Humidifier & Ventilating Co., Boston, Mass.

Charles A. Segner, Vapo Systems, Chicago, Ill.

Marvin T. Barnum, the Wilcolator Co., Newark, N. J.

Paper Pulp from Hybrid Poplars, a Reforestation Remedy, by Dr. Ralph H. McKee, department of chemical engineering, Columbia University, New York, N. Y. Discussion from the floor.

12.15 to 1 p. m.: Special demonstrations of exhibits of recent precision machines that have been further developed as the result of research—eighth floor, G Street Extension.

1 p. m.: Luncheon in Cafeteria, eighth floor.

1 p. m.: Reserved table in Cafeteria for luncheon meeting of research and survey committee, Printing Industries Division, A. S. M. E., Dr. Arthur C. Jewett, chairman. Members of the ways and means committee appointed by delegates to the first conference, at Pittsburgh, Pa., invited.

MONDAY AFTERNOON, MARCH 16, 1931

Chairman, Roy Mangum, executive editor Printing News, New York, N. Y.

Presiding officer, Burt D. Stevens, first vice president the Miehle Printing Press & Manufacturing Co., Chicago, Ill.; member of executive committee, Printing Industries Division, A. S. M. E.

Pre Make-ready Methods and Machines, by J. W. Rockefeller, jr., engineer, Edgar C. Ruwe Co., New York, N. Y.

Prepared discussions on the engineering construction and operation of specific precision machines or systems aiding premake-ready, by:

H. W. Hacker, president the Hacker Manufacturing Co., Chicago, Ill.

L. W. Claybourn, president the Claybourn Process Corporation, Milwaukee, Wis.

R. O. Vandercook, R. O. Vandercook & Sons, Chicago, Ill.

William C. Huebner, president the Huebner-Bleistein Patents Corporation, Buffalo, N. Y.

E. G. Schreiber, Fuchs & Lang Co., New York, N. Y.

Discussion from the floor.

Paper and Ink Testing—Some Simple Tests and Their Application; Some Troubles and the Remedy, by Summerfield Eney, jr., Champion Coated Paper Co., Hamilton, Ohio. Discussion led by Samuel W. Addleman, Acme Printing Ink Co., Chicago, Ill. (designated by President C. R. Conquergood, of the National Association of Printing Ink Makers).

The Deep-Etch Offset-Plate Process of Doctors Bekk and Kaulen, by Max Reichel, New York, N. Y. Discussion led by engineer of Swart & Trampusch, New York, N. Y., American representatives.

Ink Drying by Ozone and the Ultraviolet Ray, by Robert A. Brown, Nashua Gummed & Coated Paper Co., Nashua, N. H. Discussion.

2.15 p. m.: Inspection of the Government Printing Office, manufacturing plant and the new research laboratory.

2.30 p. m.: Group conference on air-conditioning data for printing. Chairman, Carl W. Davis, Mount Pleasant Press, Harrisburg, Pa.

5 to 6.30 p. m.: Special demonstrations of exhibits.

6.30 p. m.: Dinner meeting, Harding Hall of the Government Printing Office. Toastmaster: L. W. Wallace, executive secretary, American Engineering Council, Washington, D. C.

Address: The Great Newspapers of Japan; Their Circulations and Equipment, by Takeo Ohara, of Osaka Mainichi and Tokyo Nichi-Nichi.

TUESDAY MORNING, MARCH 17, 1931

Chairman, Edward Epstein, president, Photo-Engravers Board of Trade, New York.

Presiding officer, Floyd E. Wilder, manufacturing director of Hearst publications; chairman of committee on pangraphic cooperation, Printing Industries Division, A. S. M. E., New York, N. Y.

Electrotype Versus Stereotype Printing Plates, by William T. Timmons, president, Lead Mould Electrotype Foundry (Inc.); president of the Employing Electrotypers and Stereotypers Association of New York City, New York, N. Y.

The Mechanics of Photo-Engraving (including latest information concerning the phototypesetting machine, "Corex," of Dyonis Uher, of Budapest, Hungary), by William Gamble, F. R. P. S., F. O. S., editor of Penrose's Annual, London, England.

Prepared discussion: The Fototypesetter, by G. F. Bagge, Cleveland, Ohio; the Multicel Photocomposing Machine, by Parker Hart, New York, N. Y.

Chromium Plating of Plates and Slugs, Their Life and the Advantages, by George B. Drach, general manager, Jersey City Printing Co., and Dr. A. Weisburg, New York, N. Y. Discussion.

9.45 a. m.: Inspection of the Government Printing Office, manufacturing plant and the new research laboratory.

10.30 a. m.: Group conference on the need for standardization of sizes, quality, and permanence of paper (with results from the standards already agreed upon). Chairman, Robert C. Fay, American Writing Paper Co., Holyoke, Mass.; chairman of the standardization committee of the American Paper and Pulp Association.

12.15 to 1 p. m.: Special demonstrations of exhibits.

1 p. m.: Luncheon in Cafeteria on eighth floor.

TUESDAY AFTERNOON, MARCH 17, 1931

Chairman, W. D. Will, publisher, printing equipment engineer, Cleveland, Ohio.

Presiding officer: Walter E. Wines, manager of Mechanical Department, American Newspaper Publishers Association, New York, N. Y.

Measuring Color and the Use of the Spectrophotometer in Determining and Matching Shades, by Dr. P. J. Mulder and Dr. Joseph Razek, physics department, University of Pennsylvania, Philadelphia, Pa. Discussions led by representative of General Electric Co., Schenectady, N. Y.

The Renck Process, by Friedrich Sachs, representative of Heinrich Renck, Germany. Discussion.

Ink Misting, by Arthur Thompson, National Carbon Co., Philadelphia, Pa. Discussion.

The Effect of Rubber Rollers, by Bert Reed, superintendent of black press-room, The American, Boston, Mass. Discussion.

2.15 p. m.: Inspection of Government Printing Office manufacturing plant and the new laboratory.

2.30 p. m.: Group conference on standardization of thickness of plates (engraving, electrotyping, stereotyping, offset) and patent bases and of cylinder diameters. Chairman, Joseph M. Farrell, the Blackman Co., New York, N. Y.; chairman of mechanical production committee of the American Association of Advertising Agencies.

3 p. m.: Group conference on establishing color standards for printing. Chairman, Adolph Schuetz, president Sterling Engraving Co., New York, N. Y.; president of the American Photo-Engravers Association.

5 to 6 p. m.: Demonstration of exhibits.

RESOLUTIONS ADOPTED AT GROUP CONFERENCES

The full conference did not take any definite action or make any recommendations in regard to the subjects discussed at the formal sessions, but several group conferences adopted resolutions and motions which are included in this report for more general information to the printing industry.

The group conference on air-conditioning data for printing agreed that the following specific subjects needed scientific investigation:

1. The time factor of change in the reaction of paper to changes in humidity.
2. The degree of humidity at which there is a practical elimination of static and the variation of this point with change in temperature.
3. Limiting factors in temperature and humidity control:
 - (a) Factors involved in type of equipment.
 - (b) Factors in the plant itself, its construction and location.
4. Effect of air conditioning on—
 - (a) Roller composition.
 - (b) Wood blocks.
 - (c) Ink drying.

CONFERENCE ON STANDARDIZATION OF PAPER

The group conference on the need for standardization of sizes, quality, and permanence of paper included the following statement in the record of its proceedings:

The first item discussed was an additional standard size for bonds and ledgers suggested by representatives of the Government Printing Office. Their contentions were that the majority of all business correspondence could go on letter-heads 8 by 10½, which would cut without waste from 21 by 32, the additional standard size they were suggesting. Representatives of the paper industry felt that the 8½ by 11 letterhead has been accepted as the standard for a number of years and were of the opinion that the Government Printing Office and railroads should conform to this size.

Considerable discussion followed and resulted in the following resolution being passed:

Resolved, That it is the sense of this meeting that 21 by 32 and its double, in bonds, ledgers, and writings, be recommended to the standing committee as an addition to Simplified Practice Recommendation No. 22."

Discussion then followed on the desirability of listing the standard sizes for other items of paper in the revised recommendation No. 22. The following motion was then passed:

Resolved, That it is the sense of this meeting that the accepted sizes as outlined below in the paper and printing industry for index bristols, cover papers, post card and rope bristols, blotting papers and cardboards, including translucents, be recommended to the standing committee as an addition to Simplified Practice Recommendation No. 22:

- | | |
|--------------------|--------------------------------|
| 1. Index bristols: | 3. Post card and rope Bristol: |
| 22½ x 24¾. | 22½ x 28½. |
| 22½ x 28½. | 28½ x 45. |
| 25½ x 30½. | 4. Blotting papers: |
| 2. Cover papers: | 19 x 24. |
| 20 x 26. | 24 x 38. |
| 23 x 35. | 5. Cardboards: 22 x 38. |
| 26 x 40. | Translucents: 22½ x 28½. |

A general discussion then followed on the desirability of standardizing the quality and permanence of paper, but as there was a wide variance of opinion, and as the time for adjournment was at hand, no action was taken.

STANDARD PLATES, BASES, AND CYLINDERS

The group conference on standardization of thickness of plates, patent bases, and cylinder diameters considered the standards adopted by the International Association of Electrotypers of America and accepted by the American Newspaper Publishers Association, the American Association of Advertising Agencies, and the United Typothetæ of America. While no formal action was taken indorsing the suggested standards, it was the consensus of opinion at the conference that they should be adopted and followed in actual practice as far as possible.

The group conference on establishing color standards for printing adopted the following motion in regard to the use of standard colors of process inks:

Feeling that the use of standard colors of process inks recommended by the American Institute of Graphic Arts had not been closely adhered to, it is recommended that action be taken to see that the standards formulated are recognized by the industry. It is further recommended that all efforts of standardization be made with a view of maintaining high standards of quality in pictorial reproduction and that the latter be not sacrificed to mechanical requirements.

CHAIRMEN'S LETTERS OF APPRECIATION

The proceedings and papers of the Washington Conference of the Printing Industries were subsequently printed and distributed by the Government Printing Office to those interested. In forwarding copies of the printed proceedings to the members of the Printing

Industries Division of the A. S. M. E., Mr. E. P. Hulse, directing chairman of the conference, wrote—

The society, in behalf of the printing industries division and its members, is extending its appreciation to the Government Printing Office and the Public Printer for their splendid work in not only publishing the papers and proceedings but also in furnishing the splendid facilities they put at our disposal for the conference.

Dr. A. C. Jewett, director of the College of Industries, Carnegie Institute of Technology, who succeeded Mr. Hulse as chairman of the A. S. M. E., Printing Industries Division, also sent the following letter to the Public Printer, under date of June 6, 1931:

It was a very gracious thing for the Government Printing Office to print the proceedings of the Second Technical Conference of the printing industry and to distribute them as it has done. I very much appreciate receiving the copy which was sent to me.

The conference could not have been as successful as it was under any other setting. The representatives of the industry thus owe their gratitude to you, personally, for this as well as many other services to the industry.

CONGRATULATED FOR CORDIAL HOSPITALITY

Prof. George A. Stetson, editor of Mechanical Engineering and one of the honorary chairmen of the conference, likewise expressed his thanks to the Public Printer in the following letter, dated June 12, 1931:

The cooperation which the Government Printing Office, through your kindness, extended to the American Society of Mechanical Engineers in the meeting of its Printing Industries Division has been greatly appreciated, and the very practical assistance which you have given to the division by publishing the papers presented at the conference has been a great help to the publications committee of the society, for which I know it is deeply grateful. I have sent copies of the published papers to the members of the committee and have previously called their attention to the very practical aid to their publication program that your services have rendered.

I personally attended the conference and had an opportunity to judge of the very cordial hospitality that the Government Printing Office extended to those participating in the conference. Those who had the arrangements in hand, under the excellent chairmanship of Mr. Alfred E. Hanson of your office, are to be congratulated upon the excellence of the conference and upon providing the proceedings and papers in such a convenient form.

UNITED TYPOTHETÆ KEEPS IN TOUCH

The United Typothetæ of America maintains its headquarters in Washington and through its departments of education and production management keeps in touch with the educational and research work of the Government Printing Office.

Concerning his part in these activities, Mr. Fred J. Hartman, director, U. T. A. Department of Education, stated in his annual report for 1931:

We have received a great deal of practical help from the Government Printing Office. Its technical laboratory has performed tests on a number of samples submitted by our members, to determine their consistency, and is a very reliable authority for source of supply of printing materials. We are in quick touch with the source of supply of Government printed matter and can obtain anything that is published in a very few moments.

The director of the U. T. A. Department of Production Management, Mr. William D. Hall, in his report to the 1931 convention of the U. T. A., thus commended the cooperation of the Government Printing Office:

Through the courtesy of Hon. George H. Carter, Public Printer, we have at our disposal one of the most completely equipped testing and research laboratories in the country. Not only are we able to secure routine tests but the competent staff of trained research and laboratory analysts under the supervision of Byron L. Wehmhoff, Technical Director, has been especially cooperative in assisting us with inquiries requiring extensive and painstaking study and research.

The Public Printer has permitted us to go "backstage," as it were, so that we could become acquainted with his department heads. These friendly relationships have enabled us to tap that vast fund of experience which these executives have acquired concerning the machines, processes, and materials peculiar to their respective departments.

* * * * *

In summarizing these remarks about our two years in Washington, I can say that these personal contacts have not only provided our office with considerable technical data and the experience of many practical executives but have given us the benefits of extensive research and experimental effort.

RESEARCH WORK IN OTHER COUNTRIES

The Public Printer, accompanied by the Technical Director, made a detailed study last summer of the progress of technical research by the printing and related industries in England, France, Germany, and Holland, where the work of the United States Government Printing Office is well known and highly commended.

In England, the subject of cooperative research work and other problems of mutual interest were discussed with the newly organized Printing Industry Research Association of Great Britain, the British Federation of Master Printers, the London Master Bookbinders Association, the British Leather Manufacturers Research Association, His Majesty's Stationery Office, the Public Record Office, the London School of Printing, the Oxford University Press, members of the British Library Association, and individual representatives of various branches of the British printing, leather, and paper industries.

BRITISH PRINTING RESEARCH ASSOCIATION

Shortly after the organization of the Printing Industry Research Association in London, the Public Printer received the following letter from its honorary secretary, Mr. J. R. Riddell, inviting him to

become the first honorary member of this association, a privilege which was accepted with great pleasure, not as a personal tribute, but as an expression of appreciation of the research service which the United States Government Printing Office is rendering to the printing industry:

THE PRINTING INDUSTRY RESEARCH ASSOCIATION,
STATIONERS' HALL, LUDGATE HILL,
London, E. C. 4, January 22, 1931.

The Hon. GEORGE H. CARTER,
Public Printer, Government Printing Office,
Washington, D. C.

DEAR MR. CARTER: At the fully attended first annual general meeting of the Printing Industry Research Association held at Stationers' Hall to-day, it was unanimously resolved to invite you to become the first honorary member of the association.

It is felt that your unselfish and valuable work in connection with the printing industry not only in your own country but throughout the world marks you as an outstanding personality in the great industry with which this association is connected; therefore the P. I. R. A. will feel greatly honoured if you will agree to have your name placed upon our honorary membership roll.

It is also resolved to place on record your valuable assistance to us in the formation of this association, which it is felt, will become of great service to the printing industry within the British Empire.

This confirms the cable sent to-day.

With kindest regards,

Yours faithfully,

J. R. RIDDELL, *Honorary Secretary.*

In a recent lecture at Stationer's Hall in London on "What Research Is Doing for the Printing Industry," Dr. George L. Riddell, technical director of the P. I. R. A., reviewed the research work started by the United States Government Printing Office in 1922, which has since been undertaken by associations established in England and Germany and is planned for the new state printing office of Soviet Russia when completed in 1934.

UNITED STATES LEADERSHIP RECOGNIZED

The American Printer (New York) in its December, 1931, issue contained the following item concerning Doctor Riddell's statement:

Dr. G. L. Riddell, Technical Director of the Printing Industry Research Association, gave credit for initiating research on behalf of the printing industry to the United States Government Printing Office, in a talk he made before a recent meeting of the Association of Master Printers of West and Northwest London.

It was in 1922, he said, that the United States Public Printer, George H. Carter, instituted the department of tests to test all raw materials consumed in the Government Printing Office. The work has since been developed and now includes also the research associates scheme, whereby one particular section of the industry may put one or two men into the Government laboratory, paying their salaries, while the Government supplies all materials for tests.

Reference to the Public Printer's conference with the London Master Bookbinders Association is contained in the following letter from J. M. Dent & Sons, of the Temple Press, Letchworth, Herts, England:

We have to thank you for a copy of the Annual Report of the Public Printer for 1930, the subject matter of which is of very great interest to us. It is satisfactory to learn that your Government gives such powerful assistance and encouragement to printers to improve their methods and maintain a high standard of quality in the craft.

We have very pleasant recollections of your visit, sir, to the Master Bookbinders' Association in England, and the excellent advice you were able to give us on that occasion in respect to methods of glue testing and other practical matters.

GERMANY ORGANIZES RESEARCH INSTITUTE

In Germany, the Public Printer and the Technical Director effected a cooperative working basis with the recently organized Research Institute for the Printing and Allied Industries (Forschungsinstitut für das Graphische Gewerbe), which has been established as a branch of the Technischen Hochschule in Berlin-Charlottenburg. The institute will have available for its technical research work the well-equipped laboratory of the faculty of materials in the Berlin-Charlottenburg school under the direction of Doctor Lehmann, a noted research authority.

The founders of the German institute were the Ministry of Education, Art, and Science, the Berlin-Charlottenburg Technical School, and an association of the following organizations of the printing and allied industries in Germany: Federation of German Master Printers, Federation of Master Process Engravers, Copper Plate and Photogravure Printers of Germany, Federation of German Offset and Lithographic Master Printers, Association of Berlin Master Printers, Society of the German Printing Trade, Federation of German Newspaper Publishers, Federation of German Master Bookbinders, and the Society of Stationery Manufacturers.

The director of the German Government Printing Office (Deutscher Reichsdruckerei), Mr. Helmberger, who made one of the principal addresses at the Pittsburgh technical conference in 1930, participated in the founding of the German institute, the by-laws of which were sanctioned by the German Government ministry.

PROGRAM FOR GERMAN PRINTING RESEARCH

The following program has been prepared for the German institute: To examine inventions as well as new printing process methods; to investigate and test new machines; to train labor for practical work on a scientific basis; to publish the results of research work; and to create a center for technical and patent literature.

Other helpful sources of information consulted in Germany were the International Bureau of the Federations of Master Printers, which is located in Berlin for the time being; the German Federation of Master Printers (Deutscher Buchdrucker-Verein); the Government Testing Research Laboratories (Staatlichen Materialprüfungsamt), Berlin-Dahlem; the German Standards Association (Normenausschuss für das Graphische Gewerbe); the German Association for Industrial Material Testing (Deutscher Verband für die Materialprüfungen der Technik); the German Society of Mechanical Engineers (Verein Deutscher Ingenieure); the Amerika-Institut at Berlin; the Masters' School of Graphic Arts at Leipzig; and the Bavarian School of Printing at Munich.

VISIT WITH FRENCH MASTER PRINTERS

Cordial relations were also established with the Association of Master Printers of France (Union Syndicale des Maitres-Imprimeurs de France) by a conference with its director, M. François Leydier, to which the following reference was made in the October number of the "Bulletin Officiel" of that organization:

Mr. Leydier gave the council an account of the visit to the union made on July 10 by Hon. G. H. Carter, of Washington, Public Printer of the United States Government Printing Office.

Thanks to the presence of Mr. Marcel Didier, chief editor, who very kindly served as interpreter, a very complete exchange of ideas was had with Mr. Carter. The interview dealt principally with the condition of printing in the United States and its relation to the Government Printing Office.

Far from competing with private industry, the United States Government Printing Office has extensive relations with it. The American Government Printing Office has a scientific laboratory, the findings of which redound to the benefit of the entire printing industry. The methods of work, the price of production, etc., are there ascertained and the results furnished to private industry.

Mr. Carter expressed the hope that the French printers would utilize the services of this establishment not only to solve their problems but also to offer their own suggestions.

The President recommended that his colleagues accept the invitation of the Public Printer of the United States Government Printing Office. The thanks of the union were extended him (Mr. Carter), both for his visit and the invitation extended by him.

FRENCH ASSOCIATION CONVEYS THANKS

Further interest in research work of the United States Government Printing Office was expressed by the president of the French Association of Master Printers, M. Louis Danel, of Lille, in a recent letter of thanks to the Public Printer for the information transmitted to the master printers' organization in France.

The following comments are quoted from a similar letter by Director Leydier:

In the October meeting I spoke of the rôle of the United States Government Printing Office, of its efforts through your initiative and direction to advance the progress of printing and its allied branches, and to increase the material and moral well-being of all those who contribute to the functioning of this industry—executives, workers, etc.

Your industrial, economic, and social rôle is particularly important and could well serve as a model to every other country.

May I hope, my dear Mr. Public Printer, that we shall soon have the pleasure of seeing you again. This desire has been expressed by every member of the committee, and I would be happy if this visit could coincide with one of our general meetings, when you could present your views to the French printers in a most effective manner.

In France a thorough inspection was made of the School for Paper Making (l'École Française de Papeterie) at Grenoble, where every courtesy was extended by the staff of the University of Grenoble and by Prof. Marcel Aribert and M. A. Ruby, editor of *Le Papier* (Paris).

In Holland, where standardization of paper sizes has been generally adopted, that and other subjects relating to the paper and printing industry were discussed with the Director of the Holland Government Printing Office (Algemeene Landsdrukkerij), the Standardization Bureau (Centraal Normalisatie Bureau), the Federation of Master Printers, and individual representatives of the printing and paper industries of Holland. Keen interest was manifested in the research work of the Government Printing Office.

TRAINING OF APPRENTICES

The Apprentice School enters the tenth year of its establishment by the Public Printer with a record of having graduated 222 skilled craftsmen in the printing trades, all but 6 of whom are still in the service of the Government Printing Office. Since the school was opened in 1922, there have been 486⁴⁸⁹ appointments to the 4-year courses in printing, binding, presswork, platemaking, and mechanics.

There were 183¹³⁰ apprentices enrolled on January 1, 1932. The total number of apprentices is limited by law to 200 at any one time. The class entering in January, 1931, consisted of 72 members, representing 20 States.

The Civil Service Commission reports 462⁴⁶⁰ eligibles still on its rolls as the result of the examination held in 1930. As the appointments average about 50 a year, it is evident that many of the eligibles will be disappointed, especially in view of the restriction to appointment before their twentieth birthday.

During the past year two young women qualified for the first time to enter the school and were appointed printer apprentices, in which assignment they are making a good record. A number of other women are also employed as printers, but they learned the trade elsewhere.

The graduating class of 1931 held its exercises on the evening of June 4, when 35 young men who had completed the 4-year course prescribed for their respective trades received certificates entitling them to continue work as journeymen in the Government Printing Office. An audience of several hundred friends and relatives gathered in Harding Hall for this eventful occasion, which was observed with all the charm and ceremony of a college commencement.

The address to the graduates was delivered by Mr. George K. Horn, of Baltimore, past president of the United Typothetæ of America, who made an inspirational talk befitting the occasion. The class address, reviewing the four years of training, was made by its president, Mr. Jerome H. Richards. Dr. James Shera Montgomery, chaplain of the United States House of Representatives, who is also cherished by the apprentices as the school chaplain, offered the invocation and joined with the graduate apprentices in their class dinner preceding the evening program.

CERTIFICATES PRESENTED TO GRADUATES

The exercises were presided over by the Deputy Public Printer, Mr. John Greene, who, together with the chief instructor, Mr. Burr G. Williams, presented the certificates to the graduates. The music for the evening was furnished by the Government Printing Office orchestra under the direction of Mr. W. C. Buckingham.

In commemoration of their graduation the class of 1931 prepared and printed a very attractive brochure containing their "Story of the Four Years" as printers, pressmen, platemakers, and bookbinders. The brochure was illustrated with individual pictures of the class, together with a roster and comments concerning each member.

As a foreword, the class booklet contained the following "Appreciation":

The members of the class of 1931 take this occasion to extend their thanks to those who have had their interests and well-being at heart—to these friends, too many to greet personally, the members wish to express sincere thanks for making possible their achievements and for leading them to success.

APPRENTICE CLASSBOOK HIGHLY PRAISED

Among many commendations of the 1931 classbook and the work of the Apprentice School, the following are representative expressions of appreciation:

From the Typothetæ Bulletin (Washington) of July 1, 1931:

A splendidly executed piece of printing, taking the form of a brochure 8 by 10¼ inches in size, this souvenir program shows definitely that the workers under the supervision of our distinguished honorary member, Hon. George H. Carter, the Public Printer, are being trained to produce printed matter of the highest class from the artistic standpoint, as well as the general run of work required for the different Government branches.

From Mr. Earl H. Emmons's "Review of Printed Specimens," in the August, 1931, issue of the *American Printer* (New York):

The graduation program is a fine example of high-class craftsmanship. Every detail has received the utmost care, and the result is a beautiful piece of work. It is inspiring to know that the world's largest printing office, which necessarily is devoted almost exclusively to speed work and mass production, is yet so operated that the art side of the industry also is given attention. Public Printer Carter, with all his other honors, deserves additional praise for his efforts and attainments in this direction, in spite of the many difficulties of such a program in such an institution.

From Mr. Norman T. A. Munder, the noted Baltimore printer:

I have just examined this morning the lovely brochure "Class of 1931."

Without any hesitancy I agree that it is a real work of art, and, more, it is the work of good hearts.

From Mr. Harry Hillman, former editor of *The Inland Printer* (Chicago), and editor of the U. T. A. publications:

May I take this opportunity to express my sincere compliments on the splendid piece of work done in the production of this brochure. It certainly shows that the Government Printing Office is right up to the minute when it comes to producing fine printing.

From Mr. Joy Elmer Morgan, editor, the National Education Association of the United States:

Your apprentice school is one of the greatest services that could possibly be rendered. It will build up the quality of printing. It will encourage pride in expert craftsmanship. It will establish a tradition of personal growth and improvement. It will inspire everyone who comes in touch with the fine graduates of this school. I hope the school may grow in numbers and in the range of its work, and that it will become the greatest college in the world in the art and science of printing.

ALUMNI HOLD FIRST ANNUAL BANQUET

During the year the graduate apprentices manifested further interest in their alma mater by organizing the Government Printing Office Alumni Association, which held its first annual banquet in Harding Hall on December 3, 1931. About 150 graduate apprentices attended the banquet, which was presided over by Mr. A. Gwinner Miller as toastmaster.

On this occasion a certificate of honorary membership was awarded to the Public Printer "in recognition and appreciation of the extraordinary interest and cooperation manifested in the technical training, material advancement, and general welfare of its members as apprentices and craftsmen."

Other certificates of honorary membership were also presented to the Deputy Public Printer, Mr. John Greene; Dr. James Shera Montgomery; Mr. Alfred D. Calvert, who was the first Instructor of

Apprentices, 1922-1924; and Mr. Burr G. Williams, the present Chief Instructor of Apprentices.

The constitution of the Alumni Association states that it was established "to perpetuate that bond of friendship enjoyed while apprentices by encouraging good fellowship and social relations among its members and to aid in promoting the best interests of the school of apprentices."

The first officers of the Association are: President, Frank Lerch; vice president, Herbert E. Goodrich; secretary, T. Bernard F. Dove; treasurer, Daniel H. Campbell.

HIGH HONORS IN ESSAY CONTEST

In the Sixth Annual Franklin Essay Contest held recently under the auspices of the International Benjamin Franklin Society, printer apprentices of the Government Printing Office were awarded second and third places for their 1,000-word essays on *The Influence of Benjamin Franklin's Career*. The recipients of these honors in the nation-wide contest were Milton A. Smith and William J. Bergin. The Franklin Society's gold medal for first place was awarded to a Los Angeles apprentice.

Other contestants were entered from Wentworth Institute, Boston; Boston Trade School, Boston; Printing Trades Evening School, New York City; State Trade School, New Britain, Conn.; Kansas State Teachers College, Pittsburg, Kans.; Vocational and Technical High School, Grand Rapids, Mich.; South Bend (Ind.) Vocational School; East Technical High School, Cleveland; Central High School, Tulsa, Okla.; Theodore Ahrens Trade School, Louisville, Ky.; and Frank Wiggins Trade School, Los Angeles, Calif.

ESSAY JUDGE COMPLIMENTS THE SCHOOL

Fred J. Hartman, director of the Department of Education, United Typothetæ of America, which promoted the contest for the Franklin Society, in advising the Public Printer of the result, wrote under date of January 15, 1932:

You will be interested to know that the judges of the Franklin Essay Contest gave second and third places to two of your apprentice students, Milton A. Smith and W. J. Bergin. In fact it was a toss-up between Smith and a student from the Frank Wiggins Trade School, of Los Angeles, for the first place.

The three judges were Prof. David Gustafson, U. T. A. professor of printing, Carnegie Institute of Technology; Otto W. Fuhrmann, director of the Division of Graphic Arts, New York University; and Harry Hillman, editor of the *Typothetæ Bulletin*.

Professor Gustafson's comment is as follows: "I particularly wish to compliment the Apprentice School of the Government Printing Office for the number of worth-while papers submitted by its students."

Instead of requiring apprentices to continue to attend night schools elsewhere, the Office course was extended during the year to include lessons in English, grammar, spelling, arithmetic, and history, subjects that are deemed essential to proper training for the work of the Government Printing Office.

The new method of instruction has proven very beneficial to the apprentices, who already have shown better knowledge of these subjects than was apparent in their school work elsewhere.

The educational courses are planned especially for practical use in the printing trades. For instance, in spelling lessons stress is laid on syllabication, capitalization, and the use of hyphens, accents, and ligatures. One apprentice made a perfect record for 84 lessons, in which he wrote 2,100 words without an error in spelling, syllabication, hyphens, accents, or ligatures.

APPRENTICES AID IN PRODUCTION WORK

The Apprentice Section not only furnishes the Office with highly skilled craftsmen, but also aids in its productive work. In the schoolroom where the printer-apprentices are given preliminary training, 39,197 hours were spent during the fiscal year 1931 on type corrections, mostly of routine monotype composition.

The schoolroom apprentices were also credited with setting by hand 7,233,700 ems of type during the year, with a total of 28,472 hours on actual composition.

Apprentices assigned to training in productive sections are carried as an expense to the division to which they are detailed and their work is so credited. During the fiscal year 1931, the apprentices in the Printing Division set 48,156,900 ems of type and read 12,875 galleys, besides working 53,359 hours on hand and job composition, 37,562 hours on make-up and imposition, and 58,767 hours on office corrections.

OTHER GOOD WORK OF APPRENTICES

The apprentices in the Presswork Division were credited with 35,606 hours of productive presswork and those in the Bindery Division with 61,338 hours on hand and machine operations. The Plate-making Division, including the Photo-Engraving Section, benefited with 21,727 hours of work by its apprentices. The Machine Section apprentices had 6,500 hours to their credit during the year.

In appreciation of the work of the Government Printing Office Apprentice School and the interest of the Public Printer in vocational education, the Annual Conference on Printing Education, under the auspices of the United Typothetæ of America, will be held in Harding Hall of the Government Printing Office in June, 1932.

This conference, lasting several days, will be attended by more than 200 printing teachers, supervisors of vocational education, and printers from all parts of the United States and Canada. Besides the formal program and discussions, which are being arranged by Mr. Fred J. Hartman, director of the U. T. A. Department of Education, there will probably be an interesting exhibit of work by a number of printing-trades schools.

CONSTRUCTION AND MAINTENANCE

A most essential part of the Government Printing Office is the Division of Construction and Maintenance, which, as its name signifies, has the responsibility of maintaining in prime condition at all times buildings, machinery, and equipment, valued at approximately \$11,000,000, and is also charged with the expenditure of approximately \$1,000,000 annually for construction and maintenance work in connection with the operation of the Government Printing Office.

Including payments to the Capitol power plant for electricity and steam, the total operating expenses charged to the Division of Construction and Maintenance for the fiscal year 1931 amounted to \$1,103,410.90, an increase of \$143,649.80 over the preceding year. This increase was due almost entirely to a daily average of 82 more employees on the rolls of the division, the total daily average for the year being 389, whose compensation in 1931 amounted to \$773,628.37.

The principal task of the division during the fiscal year ended June 30, 1931, and continuing through the calendar year 1931, was the preparation and equipping of the 8-story extension to the main building, now known as No. 45 G Street. This involved an immense amount of moving and of installing new machinery and equipment, with a multitude of jobs for the carpenter, paint, electrical, machine, pipe-fitting and sheet-metal shops.

NEW EXTENSION NOW FULLY OCCUPIED

All of this work was practically completed by January 1, 1932, and the new G Street extension, with its 173,500 square feet of floor space, was occupied on the dates below mentioned:

- Apprentice Section, August 8, 1930, fourth floor.
- Computing Section, September 15, 1930, eighth floor.
- Offset Section, October 4, 1930, fourth floor.
- Garage, October 4, 1930, basement and first floor.
- Pipe and Sheet Metal Section, October 28, 1930, second floor.
- Buildings Section, October 29, 1930, basement.
- Photo-engraving Section, November 15, 1930, eighth floor.
- Office Superintendent of Construction and Maintenance, January 26, 1931, second floor.
- Office of Technical Director and laboratory staff, January 26, 1931, fifth floor.
- Electrical Section, January 30, 1931, third floor.

Ink Section, February 4, 1931, fifth floor.

Chief Carpenter and bench workers, February 10, 1931, second floor.

Blacksmith and automobile repair work, February 28, 1931, first floor and basement.

Molding Section, electroplating equipment, April 9, 1931, seventh floor.

Superintendent of Documents Library, April 20, 1931, seventh floor.

Superintendent of Documents and clerical force, April 25, 1931, sixth floor.

Documents Salesroom, April 25, 1931, first floor.

Roller and Glue Section, June 22, 1931, fifth floor.

Machine Section, July 6, 1931, third floor.

File Room, August 3, 1931, eighth floor.

Paint Shop, October 20, 1931, eighth floor.

Maintenance Storeroom, January 20, 1932.

Since the completion of the extension on November 29, 1930, under contracts awarded by the Treasury Department, the intervening time has been used to install the large amount of fireproof fixtures, metal furniture, machinery, and other new equipment required by the increasing work of the various divisions.

NEW EQUIPMENT FOR MAINTENANCE STORES

For the maintenance stores, occupying 10,550 square feet on the first floor, steel cabinets, bins, and shelving had to be installed to provide for the more than 20,000 items of stock required in the work of the office. This equipment has been laid out so systematically that any article in stores can be located immediately without reference to the index cards which are also used to keep an active inventory of each item in the immense stock.

Another extensive installation of steel shelving and cabinet has been made in the general file room on the eighth floor, where there are 28 rows of file cases, each 30 feet long and 6 feet high; also one row of file cases 78 feet long and 10 feet high, and 36 combination cabinets, each 30 feet long and 10 feet high. If all this equipment were placed in a single row 8 feet high, it would make a file 2,000 feet in length.

DOUBLE-TIER STEEL STACKS FOR LIBRARY

Mention has already been made elsewhere in this report of the double-tier steel library stacks installed on the seventh floor for the Superintendent of Documents Library of more than half a million Government publications. Special equipment for the Platemaking, Presswork, and Technical Divisions has also been described elsewhere in this and last year's report.

After completing the installation of all the equipment for the other divisions, the Division of Construction and Maintenance undertook the even more difficult job of moving its own sections from various parts of the old building to more suitable quarters on the second and third floors of the G Street extension, where they now occupy 36,400

square feet of floor space. In addition there were extensive changes in the power-plant equipment, which continues to occupy a separate building. The laundry and box factory had to remain in the old building, but the latter was moved to a better location in close contact with the Carpenter Section by means of a bridge across the alleyway.

Moving into larger and more convenient space made possible the installation of much-needed new machinery and the replacement of obsolete equipment, especially in the Carpenter, Machine, and Pipe-fitting Sections.

NEW MACHINES FOR CARPENTER SECTION

About 20 new machines were purchased for the Carpenter Section, which is now equipped to do all kinds of woodwork required in the construction and repair of tables, benches, cabinets, racks, furniture, etc., for the entire plant. All woodworking machines are connected with a central sawdust-collecting system which prevents particles of dust and shavings from spreading in the workrooms.

The Carpenter and Paint Section handled 26,360 jobs during the fiscal year 1931, of which 85 per cent was repair work, an increase of 10,681 over the preceding year. Included in this work was the completion of the interior painting of the entire main building.

A job of special credit to the Carpenter Section is the woodwork in the officers' lunch room of the Cafeteria. Other evidences of skillful craftsmanship are the display cases, counter, and shelving which the Carpenter Section made for the Government bookstore on the first floor of the G Street extension.

The Machine Section had its hands full during the year with the extensive installation and moving of machinery in addition to getting its own shop in shipshape with practically all new equipment. The Chief Machinist reports a total of 51,176 jobs of all kinds during the year, including several important improvements in bindery machinery.

MACHINE SECTION IS WELL EQUIPPED

The Machine Section now occupies 10,851 square feet on the third floor of the G Street extension, where 22 new pieces of equipment, including several large machine tools, have been installed. The blacksmith shop is located on the alley side of the first floor, convenient to the garage and the automobile repair shop in the basement. Machine work requiring unusually large or seldom-needed equipment is ordered from the Washington Navy Yard, which has cooperated in a most satisfactory manner.

The principal items of new machinery and equipment purchased and installed during the past year are as follows:

Presswork Division: One 64-page web press with wire-stapling and pasting attachments for printing the Congressional Record and like classes of work, making three of this size and replacing one 64-page and two 32-page obsolete presses; one 64-page web press, with wire-stapling device to print, fold, and inset Farmers' Bulletins and other octavo work; 5 tabulating card presses to print cards $3\frac{1}{4}$ by $6\frac{7}{8}$ and $3\frac{1}{4}$ by $7\frac{3}{8}$ inches, replacing slower machines; 1 sheet-fed perfecting offset press, the first of its kind to be made in America; 3 flat-bed cylinder presses for printing the Patent Office specifications, replacing 3 worn-out presses; 1 machine for slitting paper rolls for tabulating card presses, with magnetic thickness gage for recording thickness of stock; one 45-inch paper-cutting machine for use in the Money Order Section, replacing an obsolete machine.

BINDERY GETS MANY NEW MACHINES

Bindery Division: Two safety trimmers, making 4 now in operation; 1 stripping machine; 1 cloth-cutting machine; 1 slitting and rewinding machine; 3 wire-stitching machines; and 1 drilling machine, all replacing old and worn-out machines. One continuous-smashing machine, replacing and doubling the output of an old-style machine; 1 straight-line continuous trimmer making 25 to 30 cuts per minute; one 56-inch and three 50-inch cutting machines to replace worn-out machines; one 45-inch cutting machine with automatic spacing device, to replace an old machine; 1 casing-in machine, to replace an old machine and to increase output; 2 pamphlet-wrapping machines (1 installed); 1 back-lining, crashing, and headbanding machine; 3 folding machines, to replace obsolete equipment; 8 book-sewing machines, with feeding and pasting devices; 1 perforating machine, with attachments for accurately striking on a line for cross-perforating; 2 punching machines, to replace obsolete machines; and 1 pneumatic book press, replacing a worn-out press.

PRINTING AND PLATEMAKING EQUIPMENT

Printing Division: Two saw trimmers for cutting down linotype slugs; 1 slug profiler for cutting and profiling slugs cast on the Ludlow machines; 1 roll-type proof press; 1 large hand proof press; 5,250 galleys of assorted sizes; 10 electric heating units for linotype and monotype metal pots; and 171 positive assemblers for linotype machines.

Platemaking Division: One plate solidifying and straightening machine; one case-filling and cooling table; 2 circular saws for electrotypes and stereotype plates, and metal bases. The Platemaking Division acquired considerable electrotyping, stereotyping, and photoengraving equipment last year for expansion into its new additions on the sixth, seventh, and eighth floors.

Stores Division: One tractor and 12 trailers; 1 traveling crane installed in the new extension to unload 5-ton trucks lowered to the basement by elevator. This equipment requires but two men to operate and does the work easier and better than previously done by eight men. Four electric lift trucks for deliveries of paper stock to all floors, and one jack-lift truck.

Division of Tests and Technical Control: One 4-roller ink mill, to replace 2 old 3-roller mills used to grind printing inks; 2 glass-lined mixers and 2 glass-lined portable tanks for use in manufacturing all kinds of liquid inks, such as writing, stamp pad, and numbering machine inks; 2 portable steel mixing tanks, 375-gallon capacity, for use in blending mimeograph and similar inks; 1 semiautomatic labeling machine, for labeling ink containers; one 6-head semiautomatic filling machine, for filling containers with liquid and semifluid inks; and 1 water heater, with automatic temperature control, for use in melting roller and glue composition.

ELECTRICAL SECTION IN NEW WORKSHOP

The new workshop of the Electrical Section, also located on the third floor of the G Street extension, is well equipped for armature repairing, which constitutes the principal shopwork, 80 per cent of the time of the electricians being spent on repair jobs and installations throughout the plant. During the year the Electrical Section handled 27,663 jobs.

In the office of the Chief Electrician are located the electric master clock for controlling the work bells and time stamps in workrooms and offices throughout the plant, and also the fire alarm and guard control system of 138 call boxes. Every office and workroom is equipped with an electric self-winding and self-regulating clock.

Installation of trojan lighting bowls was continued and completed during the year. All offices, workrooms, and halls in the main building and new extension, as well as the workrooms in the old documents building, are now equipped with the new lighting system.

INSTALLING NEW HIGH-SPEED ELEVATORS

The Electrical Section has charge of the operation of 27 passenger and freight elevators, which are also regularly inspected and kept in good mechanical condition by the Machine Section.

Contract work is in progress for the replacement of four obsolete and inadequate elevators with modern high-speed cars of greater capacity. Two of the new elevators are to be located at the main entrance, where most of the passengers are carried to the administrative offices, the Cafeteria, and Harding Hall. The other two new

elevators will be at the east G Street entrance to the main building where, in addition to hauling freight loads, they will also be available for service to the Cafeteria and Harding Hall.

The two front elevators will have a capacity of 20 passengers each and a speed of 600 feet per minute as compared with a speed of 250 feet per minute for the old 15-passenger cars. The G Street elevators will carry 30 passengers or 5,000 pounds of freight each and have a speed of 500 feet per minute.

A new elevator is also being erected to provide additional freight service in the north wing of the main building from the fifth floor to the shipping platform to expedite the delivery of bindery and press-room work. This elevator will be full automatic, with push-button signals and controls. All the new elevators will be equipped with automatic floor leveling and other devices to improve the service.

SIGNAL SYSTEM FOR TYPE MACHINISTS

The Electrical Section completed a particularly creditable job during the year in the construction of an extensive signal system for calling linotype machinists in the fifth and seventh floor sections. Signal boards, with illuminating numbers on both sides corresponding to machine numbers, are provided for each group of 24 machines. Suspended from the ceiling, they are visible from each side. A master board, with illuminating numbers of all the machines in the section, is located in a convenient place for observation by the foreman.

A switch at each machine is connected electrically with the respective group board and the master board. When the operator signals for a machinist the number of his machine is illuminated on both boards at the same time. Thus the group machinist can promptly locate any machine in trouble in his unit, and the section foreman is informed of the condition of all the machines in his section.

QUICKER RESPONSE TO ELECTRIC CALLS

Four group signal boards and one master board containing 110 numbers were installed in the Linotype Section on the seventh floor. Three other group boards and one master board with 72 numbers were placed in the Patents Section on the fifth floor. The installations required 43,000 feet of wiring.

The signal-board system has resulted in quicker response by a machinist to the call of an operator with less loss of production than in the old method of vocal calls for a machinist. It has also reduced calls for imaginary machine faults, as the foreman can readily check this class of calls. Since the installation of the electric-signal system the average time of each call is three minutes.

The Pipe and Sheet-Metal Section had an unusually busy year with the extensive plumbing and ventilating installations required by the moving and reequipping of various workrooms and the replacement of the large refrigerating equipment in the Cafeteria.

During the year a total of 11,115 jobs were completed by this section. A number of workrooms, including the electrotyping, photo-engraving, offset, ink, and roller sections, and the technical laboratory, required a large amount of new plumbing for hot and cold water, drains, and sewers, and of piping for steam, acids, ammonia, ink, brine, carbon dioxide, compressed air, and gas.

The ventilating installations were also unusually large, including better facilities for carrying off fumes from all the dark rooms, laboratory hoods, and from the acid, gas, metal, and blackleading machines, as well as furnishing fresh air to the inclosed shipping platform, the new Record pressroom, and numerous large toilet rooms which had been inadequately ventilated.

To improve the air conditions in a group of 14 toilets facing a court in the main building, a new blower having a capacity of 26,000 cubic feet per minute was placed on the roof and succeeded in overcoming a structural defect of years' standing.

SERVICES RENDERED BY POWER SECTION

The services by the Power Section during the year included compressed-air, refrigeration, brine circulation, gas distribution, battery charging, hot and cold water supply to toilet rooms, chilled water for drinking fountains throughout the plant, industrial and sanitary water pumping, conversion of electric current furnished by the Capitol power plant, and distribution of steam for heating and industrial purposes from the same source.

Due to greater production requirements, the use of electric current increased 270,673 kilowatt-hours, or 4.29 per cent, with a total of 6,577,074 kilowatt-hours for the year.

Steam consumption also increased, with a total of 89,744,518 pounds for the year, due to additional requirements of the new extension.

Gas consumption for the year was 7,705,000 cubic feet, a decrease of 784,600 cubic feet, or 9.24 per cent, due to replacements of gas-heated by electrically heated equipment.

PRINCIPAL ALTERATIONS TO BUILDINGS

The principal alterations completed during the year by employees of the Buildings Section included the following:

New office for Delivery Section, in connection with contract completion of shipping platform, which now occupies a space of 4,118

square feet under cover, with adequate light, ventilation, and toilet facilities;

Enlargement of Photo-Engraving Section by removal of walls in main building and erection of six fireproof dark rooms in the new extension;

Enlargement of job proof room, adding more light and ventilation facilities and better space for increased force;

Construction of room for additional presses in new extension adjacent to Record pressroom in main building;

Reconstruction of humidity-machine and testing rooms damaged by fire in technical laboratory;

Enlargement of penthouses for additional ventilation of workrooms, laboratory, and toilets;

Construction of basement room for storage of additional plates, including 198,290 plates of Supreme Court Reports purchased by authority of Congress;

Remodeling of various rooms vacated in the old building and documents annex to provide better facilities for storage and mailing of publications;

Remodeling of workrooms occupied in old building by carpenter, machine, electrical, pipe, sheet-metal, and blacksmith shops to provide additional space for storage of paper and other stocks of supplies and materials.

IMPROVED POWER-PLANT EQUIPMENT

A much-needed rearrangement of power-plant equipment for more efficient operation was made possible during the year by extending its space on the first floor to include 2,100 square feet formerly used for other purposes. This change released for paper storage 3,300 square feet of basement space that had been occupied by power-plant equipment now being placed in a more convenient location on the first floor.

In this extension of the Power Section there will be located 11 electric pumps, 6 of which are new equipment; two 25-ton compression refrigerating machines, 1 being new; 3 new closed-type water coolers; 2 water heaters; 1 new frequency changer for carpenter-shop power; and 2 small air compressors moved from the main room of the Power Section.

On account of the new electric refrigerators installed in the Cafeteria and the Platemaking Division, the old ice-making equipment and brine circulation for ice boxes have been discarded, releasing the Power Section of this troublesome task.

With the completion of these improvements and the installation of a 500-kilowatt synchronous converter, it is expected that the reequipping of the Power Section, which began several years ago, will be completed by July 1, 1932.

ADDITIONAL SPACE FOR STORAGE PURPOSES

Another addition of the Government Printing Office has been made possible by the purchase of property adjoining the new G Street extension, having a frontage of 32 feet and a depth of 175 feet. The 5,608 square feet thus added to the floor and ground area of the Government Printing Office, brings the present total area up to 958,403 square feet.

Proceedings for acquisition of this additional property were started three years ago, but the Department of Justice was unable to complete title for the Government until August 24, 1931.

Funds for the purchase were available from the unexpended balance of the allotment of \$1,250,000 which the Public Buildings Commission granted to the Government Printing Office for the G Street extension. A further unobligated balance of \$28,463.28 is available for use in the improvement of the newly acquired property.

The improvement will consist of demolishing the two small houses now on the land and the inclosing and roofing of the space much needed for storage purposes. Oil and gasoline will be stored there in underground tanks, thus removing them from close proximity to other buildings containing easily inflammable stocks of paper and materials.

Storage space will also be provided in the new addition for bulky building materials and for the temporary handling of trash and garbage at a proper distance from the workrooms of employees.

It is planned to have these improvements completed during the coming year, as they will be of great convenience and render a long-needed service.

PASSING OF CONGRESSIONAL GLOBE "VAULT"

There recently passed from the possession of the Government Printing Office a property known as the "Congressional Globe vault," which, although of little present value, rendered important service to the Government Printing Office for more than 50 years and was the last surviving relic of the printing of the proceedings of Congress by private contractors. For many years the Globe vault housed approximately 70,000 plates of the old Congressional Globe which the Government purchased from its publishers in 1878. The Government Printing Office began printing the Congressional Record as the

successor to the Globe with the proceedings of the Forty-third Congress in 1873.

Congress appropriated \$100,000 for the purchase of these plates, a quantity of bound and unbound copies of the Globe, and the vault. The so-called vault was a 2-story brick structure located on the alleyway between Third and Fourth Streets NW., close to Pennsylvania Avenue, where stood the building in which the Congressional Globe was printed for many years by F. and J. Rives & George A. Bailey.

The purchase of the plates proved of little value to the Government. In fact, they were unfit for use on modern printing presses. On that account the Joint Committee on Printing several years ago authorized the Public Printer to dispose of all the Globe plates. The metal from 46,000 stereotype plates was salvaged by remelting for other platemaking service, but the 24,000 rubber-composition plates had to be destroyed as this material was unfit for further use.

In later years the Globe vault had been used for the storage of old records and files of the Government Printing Office. The moving of these papers to the main office files brought to life many interesting historic records.

OLD RECORDS REVEAL PRINTING PROPHECY

Of special interest to students of the history of printing was the finding of the original drawings of printing inventions up to 50 years ago. These drawings had been used for illustrating a large atlas entitled "The Growth of Industrial Art," that was printed by the Government Printing Office in 1880. The following prophecy concerning the development of typesetting machines was printed in the Atlas of 1880:

Printers have been wont to boast that a practical type composing and justifying machine presents a problem that even Yankee ingenuity and persistence could not solve; but in view of the progress made in this direction during the last decade it can hardly be doubted that complete success will be achieved in the near future. It remains, however, to be determined whether or not the capital invested in them and the casualties incident to complicated and delicate machinery will discourage their use in place of compositors, who own themselves, are always ready, and for whom substitutes can be found if one or another prove ailing or erratic.

It is interesting to note in this connection that the Government Printing Office at present has in operation approximately 400 typesetting and casting machines and that practically none of the type for Government publications is now set by hand.

These historical references lead up to the statement that on September 3, 1931, the Public Printer, with the approval of the Joint Committee on Printing, transferred possession of the old Globe vault

property without charge to the government of the District of Columbia for use in the development of the new municipal center for the city of Washington.

The old building has been demolished and thereby ends the tale, except to add that the District commissioners were unable for several weeks to ascertain the ownership of the isolated structure, which was about to block the progress of the \$20,000,000 municipal project, until some one broke into the building, discovered that it contained records of the Government Printing Office, and thus traced the ownership to the Public Printer.

ESTIMATES FOR NEW BUILDING POSTPONED

Due to the great urge for reducing Government expenditures during the next fiscal year, the Public Printer has refrained from including in the estimates for 1933 an appropriation of \$1,000,000 to begin work on a \$4,000,000 building desired to replace the 75-year-old structure which is a constant fire menace to the entire plant.

An estimate for this purpose was submitted to the third session of the Seventy-first Congress and was supported by the following bill (H. R. 16343), which Hon. Frank Murphy, of Ohio, chairman of the subcommittee of the House Committee on Appropriations having jurisdiction of Government Printing Office appropriations, introduced and had referred to the Committee on Public Buildings and Grounds:

A BILL To provide for the demolition of certain existing structures and the erection of a new building for the Government Printing Office.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the demolition and removal of old buildings now owned by the United States and occupied by the Government Printing Office on the site bounded on the north by H Street northwest, on the east by North Capitol Street, on the south by the area formerly known as Jackson Alley, and extending west approximately three hundred and eighty-four feet from North Capitol Street, and for the construction on such site or a part thereof of a suitable building for the use of the Government Printing Office to be connected with the present main building, including elevators, conveyors, steel shelving, heating, lighting, plumbing, and other necessary fixtures, there is hereby authorized to be appropriated not to exceed \$4,000,000.

SEC. 2. The preparation of plans, advertisement for bids, and award of contracts therefor and the supervision and approval of the work shall be under the direction of the Secretary of the Treasury, who is authorized to enter into a contract or contracts for carrying out the purposes of this act at a total amount not to exceed the authorized limit of cost.

SEC. 3. The demolition of the old buildings and the plans and design of the new structure shall be subject to approval by the Public Printer.

The bill was approved by the Secretary of the Treasury, but failed of further consideration by the House Committee on Public Buildings and Grounds owing to the approaching adjournment of Congress.

When Congress resumes the appropriation of funds for necessary public buildings, it is urgently recommended that renewed consideration be given to the vital need of the Government Printing Office for an adequate fireproof building in which to safeguard its valuable stock of Government publications and great stores of paper and other materials, as set forth in the Report of the Public Printer for 1930.

EMPLOYEES' CAFETERIA AND RECREATION

Permanent improvement and fireproofing of the Cafeteria, which were completed during the year, included the replacement of all wooden partitions by tiled brick walls and the construction of new tiled refrigerators in place of the old wooden ones. All the wooden wainscoting in the Cafeteria was replaced by glazed white tiles, which were also used to inclose the base of the pillars supporting the roof. In the kitchen and service rooms the walls were lined to the ceiling with glazed white tiles, presenting a most pleasing and sanitary appearance.

The main dining room of the Cafeteria was enlarged by the removal of photo-engraving equipment to other quarters, thus providing a space 119 feet in length on one side and 250 feet on the other for the serving counters and tables, with a capacity for seating approximately 800 patrons at one time.

A counter, 31 feet in length, was added to the Cafeteria serving equipment, making three such counters available for one section of the Cafeteria in addition to a 31-foot counter provided for another section. There are also special counters for milk service and the convenience of patrons who do not desire to use the regular service counters.

ELECTRIC REFRIGERATORS FOR KITCHEN

The new refrigerators consist of three units with a total of 10 electrically refrigerated compartments which have a space of 2,165 cubic feet. Two units are installed in the kitchen, and one unit with 3 extra large compartments has been placed in a new room with the commissary stores of the Cafeteria. The refrigerators are tiled both inside and outside and are operated by central automatic refrigerating machines. Four smaller electric refrigerators have also been installed in the service counters and the pantry.

Another improvement, adding greatly to the appearance of the Cafeteria lobby, is the new candy and tobacco stand which was built especially to conform to the design of the Cafeteria and Harding Hall. The lobby has also been improved with a new terrazzo floor.

The Cafeteria office was remodeled with tiled brick walls and provided with more convenient space which is better lighted and ventilated than the old office.

Three large toilet rooms for Cafeteria employees and patrons were also remodeled in the same manner and equipped with marble partitions and terrazzo floors.

A further improvement to the Cafeteria was the reconstruction of the officers' lunch room, with walls paneled in early English oak, beamed ceiling, casement type of leaded-glass windows, random-width oak floor, antique electric fixtures, a stone fireplace, and refectory tables, sideboard, and chairs in keeping with the style of the room.

DEDICATION OF GREEN ROOM AND ANNEX

The Green Room, a place of recreation adjoining Harding Hall and the bowling alleys, was completed during the year and suitably furnished for the comfort of the employees with leather-cushioned lounges, easy chairs, and checkerboards, and equipped with a radio. Cases containing the stands of colors presented to the two veterans' units and 20 trophy cups won by championship baseball and bowling teams during the past nine years are other attractive features of the room.

The Green Room was appropriately dedicated on St. Patrick's Day, 1931, with brief addresses by Rev. Francis J. Hurney and Deputy Public Printer Greene, and an acceptance of the room by the president of the Cafeteria and Recreation Association, Mr. J. Thomas Ford. The chairman on this occasion was Mr. William J. Cassiday.

The popularity of the Green Room has increased so rapidly that recently it was necessary to furnish similarly an annex for the use of other employees. This room was also dedicated with appropriate exercises on November 24, 1931, when the principal address of appreciation was delivered by Capt. John E. Smith. The chairman on that occasion was Sergt. Levi Scott.

TESTIMONIAL FROM CAFETERIA ASSOCIATION

In appreciation of these improvements to the Cafeteria and assistance to other employee activities, to which the eighth floor, a former attic, is now devoted, the following resolutions were adopted by the Government Printing Office Cafeteria and Recreation Association on July 15, 1931, and presented to the Public Printer on its behalf by a committee consisting of Mr. Nathaniel G. Watts, Mr. Uriel C. Hays, Mr. William F. Harris, Mr. William C. Parry, and Mrs. Nora A. Bechtel:

Whereas the Hon. George H. Carter, Public Printer of the United States of America, has so often demonstrated his deep interest in the welfare of the employees of the Government Printing Office, at all times pointing the way to high and noble achievements in the service of the Government; and

Whereas the recent improvements, transformation, and alterations of the eighth floor, whereby our Cafeteria, bowling alleys, rest rooms, and Harding Hall have been beautified and enlarged, have again brought to the realization of the employees the wonderful consideration shown for their well-being and opportunity for social enjoyment; and

Whereas the establishment of the Green Room, dedicated to the use of the employees of the Government Printing Office for rest and recreation, has given them still further reason for grateful acknowledgment: Therefore be it

Resolved, That the sincere thanks of the employees of the Government Printing Office, through the Cafeteria and Recreation Association, are hereby extended to the Hon. George H. Carter, Public Printer; and be it further

Resolved, That this testimonial be presented to the Hon. George H. Carter as a token of admiration for the noble character of his work in behalf of the employees of the United States Government Printing Office and as an expression of their appreciation of his beneficent consideration in providing for their welfare; and also in reciprocal exchange of a sincere and lasting friendship.

CAFETERIA RECEIPTS AND EXPENSES

The annual report of the president of the Government Printing Office Cafeteria and Recreation Association for the year ended October 19, 1931, shows total receipts amounting to \$248,190.82, a decrease of \$18,101.38 from the preceding year. The decrease was due partly to the interruption of Cafeteria service by building operations during the year and to the Saturday half holidays, when the Cafeteria also closes at noon.

In addition to the large purchases of foodstuffs and a pay roll of \$62,847.79 for 75 employees, the Cafeteria Association expended \$2,497.17 for replacement of dishes and cutlery during the year, more than \$3,000 for new kitchen equipment, and \$3,752 for two additional bowling alleys and the reconditioning of the four old alleys.

The total number of meals served during the year was 901,888, with a daily average of 2,891 and a maximum of 4,264 for one day when a Thanksgiving dinner was served at the regular luncheon price of 25 cents. This annual feast of 2,500 pounds of turkey and several hundred mince pies is, of course, served at a loss but it is regarded as a declaration of dividend in kind instead of in cash.

3,000 EMPLOYEES ENJOY EXCURSIONS

Other benefits which employees derived from the Cafeteria and Recreation Association during the year included two excursions, one taking 2,200 to Chapel Point, Md., on the lower Potomac River, and the other entertaining 800 employees and friends at Colton, Md., near Chesapeake Bay.

As usual since the opening of Harding Hall, Christmas entertainments were provided for the children of employees, 1,500 being treated with a delightful program, presents, and refreshments on one day, and 1,000 others similarly made happy on another day.

For the further enjoyment of employees and their friends, a wonderful Christmas tree was erected in Harding Hall with an elaborate setting of village gardens, waterfalls, a brook stocked with live goldfish, electric trains dashing through mountain tunnels, a fully equipped airport with beacon light and whirling airplanes, and a scenic background of mountain views.

The Christmas-tree setting was also greatly enjoyed by the large group of American newspaper boys who visited Harding Hall on December 29 and by a delegation of the New York Junior Naval Militia who came on the following day to lunch in the Cafeteria.

The bowling alleys, increased to six in number, were more popular than ever as shown by the year's total of 67,461 games rolled by individuals and the day and night leagues of employees. A Government Printing Office team won the Federal League bowling championship and a handsome trophy cup.

WIN CITY BASEBALL CHAMPIONSHIP

The office team in the Government Baseball League also won the first-place trophy and then captured the city championship with the accompanying handsome trophy awarded by the American League for that honor. The Government Printing Office also had teams in two other local baseball leagues.

Two other organizations sponsored by the Cafeteria and Recreation Association, and of which the Government Printing Office is especially proud, are the orchestra of 25 members under the direction of Mr. William C. Buckingham, and the chorus of 40 voices under the leadership of Mr. Gerald L. Whelan.

The musical organizations were honored with an invitation to entertain a large radio audience on December 19, 1931, through the courtesy of station WMAL of Washington, and received many compliments for the excellent program rendered on that occasion.

RADIO ADDRESS ON EMPLOYEE ACTIVITIES

In connection with the radio program, Mr. J. Thomas Ford, president of the Cafeteria and Recreation Association, spoke of employee activities in the Government Printing Office. His radio address is included in this report as expressive of the viewpoint of an employee. Mr. Ford said:

LADIES AND GENTLEMEN OF THE RADIO AUDIENCE: It gives me very great pleasure to come before you to-night as a representative of the United States Government Printing Office, the largest printing plant in the world, to tell you of some of the employee activities in this, your office. In order to acquaint you with the magnitude of this great plant, I feel that you would be interested in learning of a few of the details of the work we perform.

The Government Printing Office has a little more than 5,000 employees and prints about 90,000,000 copies of various publications for the Federal and District Governments, exclusive of court briefs, and speeches and private orders for Members of Congress. We do a yearly business of about \$14,500,000. For the Post Office Department alone nearly 1,500,000,000 postal cards and more than 200,000,000 money-order blanks were printed last year.

The present Public Printer, Hon. George H. Carter, who was appointed in the spring of 1921, realizing the enormous amount of purchases by the Government Printing Office, established a division of Tests and Technical Control, where all materials are tested, and where cooperative investigations are conducted and research work undertaken for the common interest of the Government Printing Office and the printing industry. In order to further safeguard the interest of the Government, he established an apprentice school where about 200 young men and women at a time are taught printing and allied trades.

Shortly after Mr. Carter's appointment he realized the necessity for employee activities for the mutual benefit of the office and the employees. A modern and up-to-date Cafeteria was installed, and he was instrumental in the organization of the Cafeteria and Recreation Association consisting of representatives of the various units of the office, and turned over to them the operation of the Cafeteria and numerous other recreational activities.

SERVE ABOUT 2,900 MEALS DAILY

The Cafeteria last year served more than 900,000 meals, or about 2,900 meals per day, spending in this enterprise nearly \$250,000 on the local markets. The original fund for foodstuffs was loaned by the employees to the association, which also sponsors various other activities.

All foodstuffs are prepared in a sanitary, modern, sunlit kitchen, where the food and equipment are inspected each day by medical officers. The dining room will seat 800 at a time.

On account of the great quantity of foodstuffs used, it is possible to serve the employees a good, wholesome lunch for a quarter. It may be of some interest to you to know that for our Thanksgiving dinner alone, in addition to other items, we utilized 2,500 pounds of turkey, 200 gallons of dressing, and 400 pies.

Harding Hall, an auditorium, named for our first printer President, has a seating capacity of more than 1,700 people, where 800 persons can dance in comfort. It has a fully equipped stage, including curtains, switchboard, and dressing rooms. It was built for official meetings and as a place of recreation. The auditorium is very beautifully decorated in old gold, with indirect lighting, and has proven a popular place for concerts, dances, entertainments, and banquets for employees and their families, and for numerous conventions of organizations of the printing and allied industries.

EMPLOYEES ENJOY BOWLING ALLEYS

We also have in the office six modern bowling alleys which were equipped and are maintained by the employees' association. We have a day and night bowling league, and in addition to league and individual rolling, conduct numerous tournaments for the employees.

Last year two picnics were conducted for the employees of the office at which we had an attendance of about 3,000, with the usual bathing, boating, dancing, athletic events, etc.

The association also sponsors three baseball teams, and an orchestra of 25 and chorus of 40. Concerts are given on Fridays at lunch time during the winter

and selections rendered in connection with our patriotic programs held in Harding Hall.

A Christmas entertainment is held each year for the children of the employees, and is attended by about 2,400 children up to the age of 16. Each child enjoys a show and receives a present and refreshments.

We also have a golf club, two veterans' organizations, and an entry in the Federal bowling league.

Public Printer Carter, in his further thought of the employees, established two game and rest rooms, with easy chairs, where the employees can play, chat, and smoke during their luncheon periods and when off duty.

The office itself conducts a modern and up-to-date hospital where employees are treated for injuries and illness. Another employee organization conducts group insurance.

This is truly a city within itself, providing for the employee while at work and off duty. This large building which you have passed so many times contains numerous intensely interesting activities. A guide force takes visitors through from 10 a. m. to 3 p. m., and a cordial invitation is extended to you to visit us.

I thank you.

1931 CALENDAR OF EVENTS IN HARDING HALL

The following is a calendar of the more important events held in Harding Hall during the year 1931, in addition to which there were numerous entertainments and dances by various organizations of employees:

January 7. Joint installation of officers by the District of Columbia department of Spanish War Veterans. William J. Jenkins, presiding officer; address of welcome by the Public Printer; addresses by Hon. Herbert Crosby, District Commissioner, and Hon. Rice W. Means, former United States Senator from Colorado.

January 14. Banquet and entertainment of Government Printing Office Unit No. 1, United Veterans of American Wars.

January 28. Old-timers' night of Columbia Lodge, No. 174, International Association of Machinists. Address by Hon. James M. Meade, New York. Presentation of service badges to Government machinists.

February 19. Ninth anniversary dinner and entertainment of the Government Printing Office Cafeteria and Recreation Association.

March 4. Seventieth anniversary of the United States Government Printing Office. Introductory remarks by Hon. George H. Moses, chairman of the Joint Committee on Printing; address by Mr. David Lawrence, editor of the United States Daily. Music by the Government Printing Office orchestra and chorus.

March 16-17. Second Conference of Technical Experts of the Printing Industry, sponsored by the Printing Industries Division of the American Society of Mechanical Engineers, with the Government Printing Office and the United Typothetæ of America as joint hosts.

April 9. Illustrated lecture on The History of Printing, by Mr. Harry Hillman, Editor of the United Typothetæ of America Bulletin and former editor of The Inland Printer, to the apprentices and staff of the Government Printing Office.

April 16. Lecture to apprentices by the Deputy Public Printer and superintendents.

April 17. Iowa State Society, inspection of the office and dance.

- April 27-May 6. An exhibition of "Fifty Books of 1930" and "Printing for Commerce," by the American Institute of Graphic Arts, and "Fifty British Books," selected by the First Edition Club, of London.
- May 7. First annual dinner and entertainment of the Fellowship Club of the officials of the Government Printing Office.
- May 15. Visit of 40 students of the Mergenthaler School of Printing, Baltimore.
- May 19. Annual dinner entertainment of the Association of Government Building Superintendents.
- May 21. Dinner and entertainment of the Bookbinders' Union; Felix J. Belair, toastmaster; Joseph B. Fitzpatrick, master of ceremonies.
- May 29. Memorial services under the auspices of the Veterans of American Wars. Address by Capt. Dudley Wright Knox, United States Navy. Invocation by Lieut. Commander C. A. Neyman, United States Navy. Music by United States Navy Band orchestra.
- June 1-3. Conference of the Mechanical Department of the American Newspaper Publishers Association; W. E. Wines, manager.
- June 4. Graduation of apprentices, class of 1931. Address by Mr. George K. Horn, past president of the United Typothete of America.
- October 16. Weekly concerts of the Government Printing Office orchestra resumed.
- November 10. Armistice Day celebration under the auspices of the United Veterans of American Wars. Address by Maj. Gen. Amos A. Fries.
- November 25. Thanksgiving services. Address by Rev. Carl C. Rasmussen, of the Luther Place Memorial Church, Washington, D. C.
- December 3. First annual banquet of the Alumni Association of the Government Printing Office School of Apprentices.
- December 10. Joint installation of officers, District of Columbia department Spanish War Veterans. Address by the Hon. Rice W. Means.
- December 28-29. Christmas entertainments for the children of employees of the Government Printing Office.
- December 29. Visit and supper, 130 members of American Newspaper Boys' Association on second annual patriotic pilgrimage to Washington, under the auspices of the Hearst newspapers.
- December 30-31. Visit and lunch, 50 members of the United States Junior Naval Militia of New York.

THANKS OF AMERICAN NEWSPAPER BOYS

Among the many letters that the Public Printer has received in appreciation of the privilege of using Harding Hall and the Cafeteria during the year are the following:

From Mr. L. G. Leech, secretary of the American Newspaper Boys' Association, who wrote under date of January 6, 1932:

On behalf of the American Newspaper Boys' Association and the Washington Herald and the Washington Times I desire to express appreciation for the courtesies extended the boys during the Second Annual Patriotic Pilgrimage.

The trip through the Printing Office and the meeting in Harding Hall at which you spoke and the dinner made quite an occasion. In fact, a number of the boys expressed their delight and thought the visit to the Printing Office was one of the very nicest parts of the program.

I hope next year the delegation will be doubled and that we may have the privilege of carrying through the same arrangements.

From Mr. L. K. Johnson, secretary of the Washington Club of Printing House Craftsmen, who wrote on February 20, 1931:

Washington Club of Printing House Craftsmen, in regular meeting assembled, unanimously voiced its appreciation of your very generous part in the success of our annual "Government Night," held in Harding Hall, Government Printing Office, October 21, 1930.

For the privilege of holding this meeting in beautiful Harding Hall, for your presence and active participation in the proceedings, and for the kindly and sincere interest you have always manifested in its aims and activities, Washington Club feels deeply grateful.

To you, whose inspiring exemplification of our motto, "Share Your Knowledge," is acknowledged by all, we extend our whole-hearted thanks and the sincere wish for your continued health, happiness, and prosperity.

HEALTH AND SANITATION

According to the report of the Medical and Sanitary Director, 16,786 treatments were given to employees of the Government Printing Office in its emergency hospital during the fiscal year 1931, an increase of 750 over the treatments for the preceding year. This increase is accounted for by the larger number of employees in 1931.

Of the treatments during the last year, 7,412 were medical and 3,130 surgical cases. There were 4,700 retreatments. Fortunately, all the injuries were of a minor nature, only two requiring surgical operations—the amputation of fingers. No deaths occurred in the office during the year, but 40 employees died elsewhere from causes not attributable to injuries in line of duty.

In addition to the medical and surgical treatments, the hospital staff made physical examinations of 1,389 employees. Before entering the service of the Government Printing Office, every appointee must pass a physical examination by the office physician; likewise, every applicant for extension of retirement is given a similar examination. Other examinations are required from time to time as the Medical Director may deem advisable. Periodical examinations are made of apprentices to safeguard their health.

MEDICAL DIRECTOR REPORTS CLEANLINESS

The Medical and Sanitary Director also has charge of the sanitation of the entire plant, including the Cafeteria and its stocks of food for employees. His report in this regard is as follows:

It has been the policy of the present administration to improve the working conditions of the plant, and many are the improvements that have been made.

It is difficult to realize that in 10 years there could be such a marked change in an industrial plant. Up to that time little thought was given to working conditions from the employee's point of view. The workrooms were cleaned in a more or less careless way, the responsibility being left entirely to the cleaning force. To-day, every man engaged in a supervisory capacity takes pride in keeping his section clean and in good condition. He has been taught that clean surroundings and good ventilation is conducive to good health and to more and better production.

The machinery and equipment of the workrooms have been rearranged for a better "line up" for work, and in doing this sufficient space for cleanliness and sanitation was considered.

There has been considerable reconstructive work done in the Cafeteria; new refrigeration has been installed, and, wherever possible, tile substituted for woodwork. This is a decided move toward sanitation. We are proud of our Cafeteria. The food is first class and supplied at the lowest possible figure compatible with cost and maintenance.

The removal of the Apprentice Section made it possible to install and equip a splendid recreation room, known as the Green Room, which in appointments and comfort is not excelled in any industrial establishment in the country. This room enables the employees to congregate during their lunch periods and other times and get into close association with their fellows, which could not be possible without such a meeting place. This is the spirit of modern industry that is being carried out in this establishment. Every question as to health and comfort of the employee is given careful study.

We have a clean, healthful place to work, and a satisfied, efficient force. In an establishment the size of the Government Printing Office, with the volume of business handled, this can be accomplished only where there is harmony, efficiency, and cooperation.

Employees were excused 4,639 times on account of personal or family illness during 1931, an increase of 691 over the preceding year. The time thus lost amounted to 20,537 hours, all chargeable to the employees.

ANNUITIES AND INSURANCE

Twenty-four claims of employees for lost time due to injuries in line of duty were allowed by the United States Employees' Compensation Commission. The time lost on this account amounted to 1,026 days, for which the Government paid \$3,136.56 in compensation to employees of the Government Printing Office.

There were 37 retirements from the Government Printing Office on account of disability during the fiscal year, bringing the total of such retirements since the retirement law became effective in 1920 up to 207. Of this number 12 have been reinstated, and 103 have died since retirement.

The disability annuities paid up to September 30, 1931, amounted to \$422,662.61. The largest sum paid to any one annuitant on account of disability was \$9,300.59. The maximum disability annuity, based on 30 years' service and a salary of \$1,600 for five years, is \$1,200 a year. The minimum annuity is \$242.64.

Disability annuities are paid only to employees who have served at least five years and who become totally disabled by reason of disease or injury.

In case of death due to an injury received in line of duty, compensation ranging from 25 per cent to 66⅔ per cent is paid to dependents, 35 per cent being allowed to a widow or widower, without children, until death or remarriage.

Retirements on account of age numbered 146 in the fiscal year 1931. Of these, 37 were optional retirements under the act of May

29, 1930, granting employees eligible for retirement at 65 or 70 years the privilege of retiring at 63 or 68 if they have had 30 years of service. Employees must have had at least 15 years of service before they can retire for age. Age annuities are based on earnings and length of service, with a maximum of \$1,200 after 30 years' service.

Retirements for age and disability from 1920, when the act became effective, to July 1, 1931, totaled 1,069. Other than the above-stated sum of \$422,662.61 paid to disability annuitants, the retirement division of the Pension Bureau is unable to report the total payments to retired employees of the Government Printing Office.

RETIREMENT CONTRIBUTIONS BY EMPLOYEES

The records of the Government Printing Office show, however, that its employees have contributed a total of \$2,390,472.57 to the retirement fund from 1920 to July 1, 1931. Under the present law, 3½ per cent is deducted from the pay of employees for the retirement fund.

If an employee leaves the Government service or dies, his contributions are returned to him or his estate with interest at the rate of 4 per cent compounded. The largest return of an individual contribution by a Government Printing Office employee was \$1,176.54.

On the death of an annuitant retired for age, the amount remaining to the credit of his retirement contribution is paid to the dependents.

The most appealing cases of distress that have come to the attention of the Public Printer are those of the families of employees who died without adequate estates for the support of their dependents. The small return of retirement compensation in most cases barely pays the funeral expenses, which, by law, have first claim on these meager funds.

Increasing experience with such sad cases has convinced the Public Printer that Congress ought to provide some suitable form of pension for the dependents of its civilian employees who have given the best of their lives to the service of the Government.

GROUP LIFE INSURANCE ASSOCIATION

In an effort to meet this situation, at least partially, the Public Printer encouraged employees to organize a Group Life Insurance Association, which was chartered on May 1, 1931. The association now has approximately 2,500 members, with a total insurance of about \$2,000,000 carried with a well-known company.

Up to January 1, 1932, 13 death claims, amounting to \$7,500, have been paid. The policies range from \$250 to \$1,000, based on age, with an average of \$815. Employees are accepted as members without medical examination. After the charter roll was closed the

maximum entrance age was fixed at 40 years, but this does not apply to new employees.

Special credit for working out the details of the group insurance plan and the success of the association is due to Mr. M. R. Speelman, Superintendent of Binding, and Mr. J. K. Wallace, Superintendent of Accounts, who devoted many hours of their own time to study of the proposals submitted by several insurance companies.

Mr. Speelman is the first president of the Group Insurance Association, the other officers being, vice president, Thurston G. Brown, Chief of Delivery; secretary-treasurer, Ernest C. Mellor, Assistant Chief Clerk; directors—Miss Sarah Ambler, librarian; Mr. T. Homer Hall, machinist; Capt. John E. Smith, monotype keyboard operator; and Mr. James K. Wallace, Superintendent of Accounts.

32 EMPLOYEES' RELIEF ASSOCIATIONS

There are also 32 voluntary relief associations in the Government Printing Office which pay sick and death benefits by collection of nominal dues. These associations likewise serve as savings societies by the annual return to members of dues in excess of other benefits paid during the year. The memberships range from 33 to 1,235 for each association. The total of 9,216 members reported by the 32 associations is due to the fact that many employees are members of more than one association.

The total death benefits paid during the last year by these associations amounted to \$21,650, and the total sick benefits, \$33,582.14. The individual death benefit per unit is \$250, and the sick benefit \$10 per week for not exceeding six weeks. The cash refunds of collections not required for death and sick benefits amounted to \$105,685 last year.

870 WAR VETERANS AMONG EMPLOYEES

The interests of war veterans employed in the Government Printing Office are especially looked after by two units in the United Veterans of American Wars, with a total membership of 445. On January 1, 1932, there were 870 veterans employed in the Government Printing Office, of whom 705 served in the World War, 89 in the Spanish-American War, and 18 in both wars. Twenty per cent of the men employed in the Government Printing Office are war veterans. Fourteen women employees are listed by the Civil Service Commission as entitled to war-service preference.

The number of women on the rolls of the Government Printing Office on January 1, 1932, was 1,001, an increase of 15 for the year. The number of men employed on that date was 4,042, an increase of 201 over the preceding year.

CELEBRATION OF SEVENTIETH ANNIVERSARY

The seventieth anniversary of the establishment of the Government Printing Office was celebrated on March 4, 1931, with appropriate ceremonies in Harding Hall, attended by distinguished guests and a capacity audience of nearly 2,000 employees.

Hon. George H. Moses, of New Hampshire, chairman of the congressional Joint Committee on Printing, presided over the program and made an introductory address reviewing the history of the Government Printing Office and referring especially to its accomplishments in the last 10 years.

Senator Moses has been a staunch friend of the employees of the Government Printing Office throughout his long and distinguished service as chairman of the Joint Committee on Printing. His wholehearted support of every improvement for the benefit and comfort of employees is sincerely appreciated, as was attested by the prolonged applause which greeted his generous assurance of deep interest in the continued development of the Government Printing Office.

Mr. David Lawrence, the noted newspaper writer and president of the United States Daily, also greatly interested the audience in his discussion of the importance and the influence of Government publications. His address was timely and gave the employees renewed pride in their work and the establishment that they had helped advance to a foremost position on its seventieth anniversary.

The formal program for the exercises was as follows:

ASSEMBLY MARCH— <i>American Legion</i>	Parker
G. P. O. Orchestra, W. C. Buckingham, <i>Conductor</i>	
SELECTION— <i>The Lost Chord</i>	Sullivan
G. P. O. Chorus, G. L. Whelan, <i>Conductor</i>	
INTERMEZZO— <i>Cupid's Garden</i>	Eugene
G. P. O. Orchestra	
SOLO— <i>Ah! Sweet Mystery of Life</i>	Herbert
<i>Annie Laurie</i>	Arranged by Lehman
Miss Mary Apple	
Mr. Christopher Tenley, <i>Accompanist</i>	
INTRODUCTORY REMARKS.....	Senator George H. Moses
<i>Chairman of Joint Committee on Printing</i>	
ADDRESS.....	Mr. David Lawrence
<i>President of The United States Daily</i>	
DUET— <i>Indian Dawn</i>	Zamnechnik
<i>The Sweetest Story Ever Told</i>	Stults
Miss Mary Apple, <i>Contralto</i>	
Miss Jean Munn, <i>Soprano</i>	
Mr. Christopher Tenley, <i>Accompanist</i>	
STAR SPANGLED BANNER.....	G. P. O. Orchestra

The guests of honor included Hon. Edward M. Beers, of Pennsylvania, chairman of the House Committee on Printing, and Maj. Thomas Defrees, of Washington, son of the first Superintendent of the Government Printing Office.

Other guests of honor were the following employees, who have had more than 50 years of service in the Government Printing Office:

William A. Smith
William W. Maloney
Samuel Robinson
Miss Mary T. Spalding

Special guests included a large number of retired employees who had been in the service of the Government Printing Office for 30 or more years.

ESTABLISHMENT OF GOVERNMENT PRINTING OFFICE

In this connection, it seems fitting to refer briefly to the historical fact that the establishment of the Government Printing Office was authorized by an act of Congress of June 23, 1860. The private printing plant which the Government subsequently purchased for its future use did not come into actual possession of the Acting Superintendent of Public Printing until March 4, 1861.

Soon thereafter, President Lincoln appointed Hon. John D. Defrees, of Indiana, as the first Superintendent of the new Government Printing Office.

The original building, then known as the Public Printing Office, together with all its printing machinery and material, cost the Government \$135,000. This sum was paid to the former owner, Joseph T. Crowell, by a check on the United States Treasurer dated March 2, 1861.

COMPARISON OF OFFICE IN 1861 AND 1931

The first Government Printing Office was housed in a four-story building containing 60,000 square feet of floor space. The present buildings, costing approximately \$5,000,000 and containing printing machinery, equipment, and materials valued at \$5,910,000, have 958,403 square feet of floor space.

In 1861, the Government Printing Office had about 350 employees, and on its seventieth anniversary the enrollment totaled 4,936. The wages of printers and pressmen in 1861 was \$14 a week, and in 1931 their average earnings were \$55 per week.

During the 70 years, 11 persons have had charge of the Government Printing Office under presidential appointments, first as Superintendent of Public Printing, then as Congressional Printer, and finally as Public Printer. The latter title was prescribed by Congress in 1874.

The longest service during the 70 years was rendered by Hon. John D. Defrees, who had charge of the Government Printing Office for 12½ years in three different periods between 1861 and 1882. The present Public Printer holds the record for the longest continuous service.

PUBLIC PRINTERS DURING THE 70 YEARS

The service records of the eleven executives of the Government Printing Office are as follows:

JOHN D. DEFREES

OF INDIANA

Appointed Superintendent of Public Printing by President Lincoln.

Served from March 23, 1861, to August 31, 1866.

Elected Congressional Printer by the Senate of the United States.

Served from March 1, 1867, to April 14, 1869.

Appointed Public Printer by President Hayes.

Served from June 1, 1877, to April 14, 1882.

CORNELIUS WENDELL

OF NEW YORK

Appointed Superintendent of Public Printing by President Johnson.

Served from September 1, 1866, to February 28, 1867.

ALMON M. CLAPP

OF NEW YORK

Elected Congressional Printer by the Senate of the United States.

Served from April 15, 1869, to July 31, 1876.

Appointed Public Printer by President Grant.

Served from August 1, 1876, to May 30, 1877.

STERLING P. ROUNDS

OF ILLINOIS

Appointed Public Printer by President Arthur.

Served from April 15, 1882, to September 12, 1886.

THOMAS E. BENEDICT

OF NEW YORK

Appointed Public Printer by President Cleveland.

Served from September 13, 1886, to May 6, 1889; and

Served from May 3, 1894, to March 30, 1897.

FRANK W. PALMER

OF ILLINOIS

Appointed Public Printer by President Harrison.

Served from May 7, 1889, to May 2, 1894.

Appointed Public Printer by President McKinley.

Served from March 31, 1897, to September 8, 1905.

CHARLES A. STILLINGS
OF MASSACHUSETTS

Appointed Public Printer by President Roosevelt.
Served from November 28, 1905, to February 5, 1908.

JOHN S. LEECH
OF ILLINOIS

Appointed Public Printer by President Roosevelt.
Served from June 9, 1908, to November 30, 1908.

SAMUEL B. DONNELLY
OF NEW YORK

Appointed Public Printer by President Roosevelt.
Served from December 1, 1908, to June 26, 1913.

CORNELIUS FORD
OF NEW JERSEY

Appointed Public Printer by President Wilson.
Served from June 26, 1913, to April 4, 1921.

GEORGE H. CARTER
OF IOWA

Appointed Public Printer by President Harding, March 29, 1921.
Began service, April 5, 1921.
Nomination submitted to Senate, April 14, 1921.
Confirmed by Senate, April 14, 1921.

PUBLIC PRINTER'S TENTH ANNIVERSARY

In concluding this the eleventh report which the present Public Printer has submitted to Congress on the operations of the Government Printing Office for the fiscal years ended June 30, 1921 to 1931, inclusive, it is gratifying to record some of the expressions of good will which came, along with a profusion of flowers and personal greetings, to cheer his tenth anniversary on April 5, 1931.

One greeting that was especially pleasing is the following message of felicitations, signed by all the chairmen of the employees' chapels in the day sections of the Printing Division:

GREETINGS:

Hon. GEORGE H. CARTER, *Public Printer*.

The employees of the day printing sections convey to you their felicitations upon the completion of the tenth anniversary as Public Printer of the Government Printing Office.

The atmosphere of this big print shop is permeated with that feeling of contentment that can not be found elsewhere.

This condition was brought about during the past 10 years by your wise counsel and leadership, and while we can not enumerate all the benefits we have received, we want to especially refer to the wonderful transformation of

the eighth floor, which was a garret, full of junk, etc., upon your first anniversary, now a wonderful Cafeteria and recreation floor which can not be excelled anywhere in the United States for artistic beauty and comfort for the employees.

All of these conditions and many others, we have been beneficiaries without costing us one cent, and we feel we owe you more than can ever be repaid by letters, resolutions, etc., for these pleasant and harmonious surroundings.

As you are chairman of the largest printers' chapel, under one roof, in the world, it is our wish that you remain as such for many more anniversaries.

GEO. G. WHITE,
Chairman Hand Section.

URIEL C. HAYS,
Chairman Proof Section.

ROBERT J. MEARS,
Chairman Job Section.

A. M. FORRESTER,
Chairman Lino Section.

PERCY S. ANDERSON,
Chairman Library Branch.

ROBERT E. HENAULT,
Chairman Mono Hand Section.

GEORGE F. HOOVEN,
Chairman Superintendent's Office.

IRA B. PRIDDY,
Chairman Patent Section.

HENRY E. MATHENY,
Chairman Accounts Division.

FRANCIS J. MCCARTHY, Jr.,
Chairman Keyboard Section.

The following resolution, which was presented in beautifully engrossed form, the handiwork of their fellow craftsmen, is also greatly cherished by the Public Printer because it came from a wonderfully loyal group whose whole-hearted support and devotion to duty have helped make possible whatever success the Government Printing Office may have achieved in the last 10 years:

IN APPRECIATION

Whereas on April 5, 1921, Hon. George H. Carter was appointed Public Printer of the United States by the first printer President, Hon. Warren G. Harding; and

Whereas due to his initiative, determination, perseverance, and unfaltering loyalty to an ideal, we have witnessed, through progressive changes, the growth of an establishment which is now, in equipment, productiveness, and efficiency, the world's greatest printing office; marked improvement in standard and quality of work, performed in orderly rearranged workrooms which provide the maximum in convenience and sanitation; the provision for the comfort and enjoyment of its thousands of employees, by the inception and development of Harding Hall, a model Cafeteria, and recreational features of the highest order; the revival of apprentice instruction through a medium which excels all other allied printing-trades schools in size, curricula, and intensive vocational training; the creation of a technical agency whose research work is a valued contribution to the printing industry; the inauguration of a system of wage adjustment which automatically works for mutual welfare and definitely ended the periodical bickerings which characterized archaic procedure; the manifestation of his ever-present solicitude for the welfare and happiness of all employees, whom he has always treated on a fairer basis than that of exploitation—whom he regards as citizens rather than as commodities—as exemplified during his incumbency by substantial wage increases; and

Whereas on this the tenth anniversary of his continuous service, under three Presidents, as chief executive of the United States Government Printing Office, it is timely and fitting that the associates and coworkers of the Public Printer during the decade of his stewardship honor the man and express admiration of his accomplishments: Therefore, be it

Resolved, That we, the undersigned, on behalf of the officials and employees of the United States Government Printing Office, extend to Hon. George H. Carter heartiest congratulations on the tenth anniversary of his incumbency as Public Printer of the United States; express admiration of his rare executive ability, his sterling worth, and his signal success in taking the hurdles along life's highway; and sincerely trust that in this and the future years he may be vouchsafed a continuance of that satisfaction and happiness which is ever the reward of well-doing.

JOHN GREENE, <i>Deputy Public Printer.</i>	W. A. MITCHELL, <i>Superintendent of Planning.</i>
MARY A. TATE, <i>Assistant to the Public Printer.</i>	H. B. BARNHART, <i>Superintendent of Printing.</i>
E. S. MOORHEAD, <i>Production Manager.</i>	BERT E. BAIR, <i>Superintendent of Presswork.</i>
H. H. WRIGHT, <i>Chief Clerk.</i>	M. R. SPEELMAN, <i>Superintendent of Binding.</i>
J. K. WALLACE, <i>Superintendent of Accounts.</i>	E. G. WHALL, <i>Superintendent of Platemaking.</i>
E. E. EMERSON, <i>Purchasing Agent.</i>	E. A. HUSE, <i>Night Production Manager.</i>
B. L. WEHMHOF, <i>Technical Director.</i>	A. E. HANSON, <i>Superintendent of Construction</i>
D. P. BUSH, M. D., <i>Medical and Sanitary Director.</i>	<i>and Maintenance.</i>
ALTON P. TISDEL, <i>Superintendent of Documents.</i>	W. H. KERVIN, <i>Storekeeper and Traffic Manager.</i>

To all these loyal associates and the host of other good friends who likewise have expressed their good will, the Public Printer is sincerely grateful and extends to them his most hearty thanks.

Under authority of the act approved February 20, 1931 (Public, No. 691, 71st Cong.), the Public Printer has discontinued the printing of such other and additional reports for the fiscal year ended June 30, 1931, as have usually been submitted to Congress concerning the business of the Government Printing Office. The original copies of such reports will be kept on file in the office of the Public Printer for public inspection, as provided for in said act.

Respectfully submitted.

George H. Carter.
Public Printer.

DIVISION OF ACCOUNTS
STATISTICAL TABLES

STATISTICAL TABLES

COMPILED BY THE SUPERINTENDENT OF ACCOUNTS AND BUDGET OFFICER

TABLE 1.—*Resources and liabilities under appropriations for the fiscal year ended June 30, 1931*

RESOURCES	
Appropriation for working capital.....	\$2, 500, 000. 00
Appropriations for night messenger service.....	3, 600. 00
Allotment under act of July 3, 1930.....	416. 70
Payments from all sources for printing and binding.....	11, 837, 604. 53
Refunds from various sources.....	365. 98
Bills receivable July 1, 1931, for printing and binding furnished.....	208, 840. 88
	<u>\$14, 550, 828. 09</u>
Appropriation for salaries, office of Superintendent of Documents.....	524, 000. 00
Appropriation for general expenses, office of Superintendent of Documents.....	246, 000. 00
Appropriation for equipment for Government Printing Office Building ¹	200, 000. 00
Total resources available for fiscal year 1931.....	<u><u>\$15, 520, 828. 09</u></u>
LIABILITIES	
Working capital and repayments for printing and binding:	
Disbursed to June 30, 1931.....	\$13, 015, 713. 75
Outstanding obligations July 1, 1931.....	1, 472, 715. 33
Total disbursed and outstanding obligations.....	<u>14, 488, 429. 08</u>
Salaries, office of Superintendent of Documents:	
Disbursed to June 30, 1931.....	477, 634. 18
Outstanding obligations July 1, 1931.....	21, 361. 57
Total disbursed and outstanding obligations.....	<u>498, 995. 75</u>
General expenses, office of Superintendent of Documents:	
Disbursed to June 30, 1931.....	145, 364. 01
Outstanding obligations July 1, 1931.....	100, 437. 99
Total disbursed and outstanding obligations.....	<u>245, 802. 00</u>
Equipment, Government Printing Office Building:	
Disbursed to June 30, 1931.....	100, 865. 56
Outstanding obligations July 1, 1931.....	98, 253. 44
Total disbursed and outstanding obligations.....	<u>199, 119. 00</u>
Total disbursed to June 30, 1931.....	13, 739, 577. 50
Total outstanding obligations July 1, 1931.....	1, 692, 768. 33
Total disbursed and outstanding obligations.....	<u>15, 432, 345. 83</u>
Unobligated balance (subject to 10 per cent over or under on outstanding orders).....	² 88, 482. 26
Total.....	<u><u>15, 520, 828. 09</u></u>

¹ Appropriated in 1929 and available until used; none used in 1930.

² Includes \$831, equipment, Government Printing Office Building, available in 1932.

TABLE 2.—Summary of financial transactions in fiscal year ended June 30, 1931, covering appropriations for fiscal years 1929, 1930, and 1931

APPROPRIATION FOR 1929

	Resources	Disbursements	Unexpended balance July 1, 1931
Public printing and binding:			
Unexpended balance July 1, 1930.....	\$458,450.30		
Credits to appropriations by payments from all sources for printing and binding and other receipts from miscellaneous sources.....	1,298.63		
Disbursed for material and supplies.....		\$30,488.00	
Total.....	459,748.93	30,488.00	\$429,260.93
Salaries, office of Superintendent of Documents:			
Unexpended balance July 1, 1930.....	22,652.76		22,652.76
General expenses, office of Superintendent of Documents:			
Unexpended balance July 1, 1930.....	802.65		
Disbursed.....		645.08	
Total.....	802.65	645.08	157.57
Grand total appropriation.....	483,204.34	31,133.08	452,071.26
Unobligated balance of 1929 appropriation on June 30, 1931.....			452,071.26

APPROPRIATION FOR 1930

Public printing and binding:			
Unexpended balance July 1, 1930.....	\$788,078.72		
Credits to appropriations by payments from all sources for printing and binding and other receipts from miscellaneous sources.....	596,315.83		
Disbursed for labor.....		\$387,369.58	
Disbursed for paper.....		516,696.41	
Disbursed for lithographing and engraving.....		85,725.52	
Disbursed for material and supplies.....		303,688.69	
Total.....	1,384,394.55	1,293,480.20	\$90,914.35
Equipment, Government Printing Office Building:			
Available July 1, 1930.....	200,000.00		
Disbursed.....		100,865.56	
Total.....	200,000.00	100,865.56	¹ 99,134.44
Salaries, office of Superintendent of Documents:			
Unexpended balance July 1, 1930.....	45,456.57		
Disbursed.....		22,475.03	
Total.....	45,456.57	22,475.03	22,981.54
General expenses, office of Superintendent of Documents:			
Unexpended balance July 1, 1930.....	68,924.37		
Disbursed.....		67,837.27	
Total.....	68,924.37	67,837.27	1,087.10
Grand total appropriation.....	1,698,775.49	1,484,658.06	214,117.43
Deduct for outstanding obligations.....			102,966.53
Unobligated balance of 1930 appropriation on June 30, 1931.....			¹ 111,150.90

¹ Includes \$881 for equipment for Government Printing Office Building, available for orders in 1932.

TABLE 2.—Summary of financial transactions in fiscal year ended June 30, 1931, covering appropriations for fiscal years 1929, 1930, and 1931—Continued

APPROPRIATION FOR 1931

	Resources	Disbursements	Unexpended balance July 1, 1931
Public printing and binding:			
Appropriation for working capital.....	\$2, 500, 000. 00	-----	-----
Appropriation for night messenger service.....	3, 600. 00	-----	-----
Allotment under deficiency act of July 3, 1930.....	416. 70	-----	-----
Credits to appropriation by payments and bill receivable from all sources for printing and binding, and other receipts from miscellaneous sources.....	12, 046, 811. 39	-----	-----
Disbursed for labor.....	-----	\$9, 195, 214. 37	-----
Disbursed for paper.....	-----	2, 333, 624. 05	-----
Disbursed for lithographing and engraving.....	-----	73, 905. 97	-----
Disbursed for material and supplies.....	-----	1, 412, 969. 36	-----
Total.....	14, 550, 828. 09	13, 015, 713. 75	\$1, 535, 114. 34
Salaries, office of Superintendent of Documents:			
Available.....	524, 000. 00	-----	-----
Disbursed.....	-----	477, 634. 18	-----
Total.....	524, 000. 00	477, 634. 18	46, 365. 82
General expenses, office of Superintendent of Documents:			
Available.....	246, 000. 00	-----	-----
Disbursed.....	-----	145, 364. 01	-----
Total.....	246, 000. 00	145, 364. 01	100, 635. 99
Equipment, Government Printing Office Building: ¹			
Available.....	200, 000. 00	-----	-----
Disbursed.....	-----	100, 865. 56	-----
Total.....	200, 000. 00	100, 865. 56	99, 134. 44
Grand total appropriation.....	15, 520, 828. 09	13, 739, 577. 50	1, 781, 250. 59
Deduct for outstanding obligations.....	-----	-----	1, 692, 768. 33
Unobligated balance of 1931 appropriations on June 30, 1931.....	-----	-----	\$ 88, 482. 26
Total unobligated balances (subject to change by 10 per cent over and under on outstanding obligations):			
1929.....	-----	-----	452, 071. 26
1930.....	-----	-----	\$ 110, 269. 90
1931.....	-----	-----	\$ 87, 601. 26
Total.....	-----	-----	649, 942. 42

RECAPITULATION—ALL APPROPRIATIONS

Total paid for labor.....	\$9, 582, 583. 95
Total paid for material and supplies.....	1, 747, 146. 05
Total paid for lithographing and engraving.....	159, 631. 49
Total paid for paper.....	2, 850, 320. 46
Total paid for printing and binding.....	14, 339, 681. 95
Total paid for salaries, office of Superintendent of Documents.....	\$ 500, 109. 21
Total paid for general expenses, office of Superintendent of Documents.....	213, 846. 36
Total paid for equipment, Government Printing Office Building.....	100, 865. 56
Grand total.....	15, 154, 503. 08

¹ Appropriated February 28, 1929, and available until used; none used in 1930.² Includes \$881, equipment, Government Printing Office Building, available in 1932.³ \$881 has been deducted on account of equipment, Government Printing Office Building, as it is a continuing appropriation and thus available for orders in 1932.⁴ Includes amount paid to retirement fund.....

\$338, 678. 13

⁵ Includes amount paid to retirement fund.....

17, 078. 66

Total paid to retirement fund..... 355, 756. 79

TABLE 3.—*Moneys received during fiscal year 1931, the source, and Treasury deposit*

1930			
Deposited to the credit of appropriation for public printing and binding:			
For printing and binding for departments and bureaus.....		\$587, 621. 87	
For miscellaneous printing and binding.....		5, 396. 24	
Refunds.....		101. 50	
Auditor's disallowance.....		3. 25	
Total.....			\$593, 122. 86
1931			
Deposited to the credit of appropriation for public printing and binding:			
For printing and binding for departments and bureaus.....	11, 075, 362. 54		
For miscellaneous printing and binding.....	78, 611. 80		
Refunds.....	300. 96		
Auditor's disallowance.....	16. 16		
Total.....			11, 154, 291. 46
Deposited to miscellaneous receipts:			
Sale of waste paper.....	34, 091. 07		
Salvage, waste wood, metal, etc.....	6, 905. 48		
Sale of documents.....	218, 848. 76		
Total.....			259, 845. 31
Grand total.....			12, 007, 259. 63

TABLE 4.—*Production of principal items entering into printing and binding in fiscal years 1929, 1930, and 1931*

Item	1929	1930	1931
Main office and Congressional Library branch:			
Total charges for printing and binding.....dollars..	12, 715, 330. 80	14, 096, 520. 25	¹ 15, 246, 440. 75
Jackets written.....number..	58, 860	62, 303	64, 938
Estimates made.....do.....	54, 269	55, 033	59, 661
Bills computed.....do.....	75, 919	78, 999	86, 303
Total ems set.....do.....	2, 226, 741, 000	2, 473, 567, 100	2, 507, 813, 400
Time-work in composing sections.....hours..	251, 514	258, 299	282, 197
Electrotype and stereotype.....square inches..	10, 820, 451	12, 448, 269	11, 438, 314
Postal cards printed.....number..	1, 820, 181, 228	1, 731, 266, 760	1, 485, 384, 120
Money-order books shipped.....do.....	1, 040, 807	1, 055, 312	1, 060, 127
Forms sent to press.....do.....	153, 427	173, 742	163, 558
Actual impressions.....do.....	512, 438, 770	586, 530, 941	688, 768, 017
Chargeable impressions.....do.....	2, 225, 320, 830	2, 364, 948, 413	2, 393, 483, 181
Sheets folded.....do.....	378, 361, 054	452, 673, 407	396, 746, 323
Signatures gathered.....do.....	154, 190, 077	159, 676, 789	150, 538, 801
Tips made.....do.....	22, 179, 086	29, 420, 080	23, 627, 442
Copies wire-stitched.....do.....	45, 017, 756	51, 738, 999	49, 371, 739
Copies paper covered.....do.....	10, 547, 504	12, 638, 296	13, 582, 217
Books and pamphlets trimmed.....do.....	44, 992, 890	56, 041, 685	55, 809, 139
Books rounded and backed.....do.....	1, 308, 867	1, 724, 386	1, 131, 092
Books marbled and edged.....do.....	457, 659	510, 703	243, 804
Stamping impressions.....do.....	2, 743, 084	3, 424, 186	2, 711, 569
Books cased in.....do.....	1, 668, 704	2, 143, 025	1, 474, 904
Indexes cut.....do.....	195, 664	294, 670	135, 809
Sheets passed through ruling machine.....do.....	26, 869, 442	34, 997, 757	40, 335, 332
Signatures sewed.....do.....	58, 600, 715	66, 015, 602	51, 873, 305
Copies punched and drilled.....do.....	148, 993, 935	161, 098, 129	143, 070, 534
Sheets and lines perforated.....do.....	8, 189, 768	13, 147, 042	11, 979, 426
Tablets made.....do.....	3, 573, 051	3, 972, 821	4, 656, 283
Miscellaneous rebinding, etc.....do.....	93, 376	98, 963	101, 536

¹ Includes \$700,000 estimated labor and material on uncompleted jobs.

TABLE 5.—Charges for work and to whom delivered during the fiscal year ended June 30, 1931

Congress.....	\$2,499,995.34
Work ordered by Members of Congress:	
Miscellaneous charges.....	223.09
Documents, reports, bills, etc.....	17,742.86
Speeches.....	61,257.91
Private orders for electrotypes.....	11.05
Superintendent of Documents.....	720,600.38
State.....	250,559.39
Treasury.....	941,489.95
War.....	684,459.76
Navy.....	747,348.71
Interior.....	249,138.63
Geological Survey.....	139,198.21
Smithsonian Institution.....	93,721.81
Justice.....	341,234.17
Post Office.....	1,895,680.02
Agriculture.....	1,080,021.83
Commerce.....	1,747,232.57
Patent Office.....	1,147,444.86
Labor.....	239,644.20
Library of Congress.....	387,912.12
White House.....	6,629.14
Pan American Union.....	40,906.66
Supreme Court:	
District of Columbia.....	4,327.91
United States.....	3,900.60
Court of Claims.....	38,499.58
Interstate Commerce Commission.....	232,647.64
Civil Service Commission.....	60,787.16
Geographic Board.....	473.62
General Accounting Office.....	78,396.18
Alien Property Custodian.....	1,460.83
Bureau of the Budget.....	34,144.48
District of Columbia.....	117,816.53
Employees' Compensation Commission.....	8,067.22
Federal Reserve Board.....	46,637.63
Federal Board for Vocational Education.....	17,403.65
Federal Trade Commission.....	47,381.43
National Advisory Committee for Aeronautics.....	25,040.04
Panama Canal.....	54,163.31
Railroad Administration.....	264.48
Board of Mediation.....	1,038.85
Shipping Board.....	42,262.18
Tariff Commission.....	17,013.43
Veterans' Administration.....	253,217.98
War Finance Corporation.....	52.78
Public Buildings and Public Parks.....	6,747.65
Arlington Memorial Bridge Commission.....	547.06
American Battle Monuments Commission.....	176.79
Bureau of Efficiency.....	539.22
Commission of Fine Arts.....	264.06
Federal Power Commission.....	3,405.05
National Forest Reservation Commission.....	239.02
Board of Tax Appeals.....	42,397.47
National Capital Park and Planning Commission.....	1,643.46
Inland Waterways Commission.....	489.36
George Washington Bicentennial Commission.....	24,179.79
Federal Radio Commission.....	11,675.70
Pan American Sanitary Bureau.....	15,647.07
War Claims Arbitrer.....	187.99
George Rogers Clark Sesquicentennial Commission.....	27.12
Personnel Classification Board.....	3,330.09
National Commission on Law Observance and Enforcement.....	7,055.32
National Academy of Sciences.....	254.34
American Samoan Commission.....	4,018.66
Yorktown Sesquicentennial Commission.....	162.94
Federal Farm Board.....	41,313.72
Court of Customs and Patent Appeals.....	4,688.70
Total.....	14,546,440.75

TABLE 7.—Itemized statement of the classes and cost of work delivered during the fiscal year ended June 30, 1931

Kind or description of work	Number of copies	Number of type pages	Publications bound	Charge for composing-room work, except authors' alterations	Charge for authors' alterations	Charge for electrotyping or stereotyping	Charge for pressroom work	Charge for bindery work	Charge for illustrations or engravings	Charge for paper	Charge for rush, miscellaneous items	Total charge
Letterheads, noteheads, and envelopes	149, 118, 805	---	---	\$28, 940.59	\$106.71	\$1, 000.38	\$71, 469.32	\$19, 240.20	\$59.13	\$130, 641.93	\$1, 366.49	\$254, 112.92
Embossed letterheads, noteheads, and envelopes	949, 460	---	---	61.85	1.25	---	3, 290.67	244.05	8.00	3, 722.30	272.86	7, 616.32
Blanks, notices, schedules, cards, etc.	3, 129, 202, 656	---	---	416, 455.08	22, 198.36	38, 855.05	454, 247.56	393, 580.36	7, 315.27	1, 280, 500.24	370, 570.88	2, 990, 276.87
Blank books with patent backs, etc.	1, 601	---	---	4, 099.15	99.15	148.08	1, 553.23	17, 910.05	---	3, 288.30	16.77	27, 114.83
Blank books without patent backs	2, 471, 731	---	---	14, 109.56	336.91	4, 047.71	62, 262.27	310, 435.30	52.27	97, 712.71	2, 241.00	491, 227.10
Binding newspapers, documents, reports, etc.	95, 542	---	---	---	---	---	---	359, 926.94	---	---	---	359, 980.68
Loose-leaf and other patent binders, etc.	298	---	---	37.30	---	8.64	10.40	263.40	---	24.87	356.54	701.15
Publications smaller than octavo	4, 886, 622	18, 045	27, 381	47, 789.46	5, 140.55	3, 206.25	14, 617.13	46, 901.11	3, 098.74	21, 329.12	1, 203.13	143, 472.10
Octavo publications	80, 794, 161	930, 454	809, 408	2, 122, 195.04	131, 947.89	154, 428.48	353, 045.07	761, 324.54	173, 241.90	408, 454.62	184, 044.71	4, 348, 943.06
Royal octavo publications	2, 147, 177	87, 080	33, 619	220, 477.20	16, 647.69	14, 574.55	37, 261.59	55, 193.98	9, 498.63	29, 902.04	20, 595.20	2, 774.59
Quarto publications	6, 409, 727	536, 971	42, 980	578, 112.18	42, 206.16	21, 101.51	64, 962.05	101, 121.20	24, 172.16	77, 368.31	22, 141.15	931, 491.66
Miscellaneous publications	18, 780, 805	1, 015, 176	270, 230	40, 715.31	949.85	2, 378.65	75, 450.28	260, 899.82	15, 005.14	155, 356.18	652.70	622, 061.19
General miscellaneous charges	---	---	---	44, 054.97	5, 754.73	15, 520.36	18, 371.07	180, 774.17	11, 480.12	179, 789.32	2, 984.59	1, 213, 930.04
Congressional Record for year	3, 637, 550	24, 260	63, 280	170, 630.76	4, 930.71	37, 776.06	54, 434.81	153, 871.20	77.85	66, 956.18	81, 978.87	570, 556.44
Bills, resolutions, and amendments (as introduced and reprints on requisitions)	4, 827, 632	76, 336	629	157, 849.77	26.54	128.52	53, 909.99	11, 658.52	---	7, 603.46	74, 522.93	305, 759.73
Specifications of patents, trade-marks, etc.	5, 804, 156	163, 071	---	777, 639.36	9, 891.99	8.15	70, 592.90	4, 038.09	---	12, 946.11	---	875, 116.60
Official Gazette, Patent Office	319, 257	16, 498	---	159, 750.41	100.20	---	23, 433.09	23, 311.97	17, 742.20	23, 769.52	---	248, 167.39
Blank paper and supplies	---	---	---	---	---	---	---	---	---	669, 861.30	178, 976.90	748, 827.20
Total	3, 409, 447, 250	2, 867, 801	1, 247, 587	4, 782, 917.99	240, 398.69	294, 142.39	1, 358, 901.43	2, 700, 694.90	262, 351.41	3, 129, 336.51	395, 130.74	14, 546, 440.75

TABLE 8.—*Inventory of quantity and cost of paper and envelopes, material and supplies, and machinery and equipment on hand June 30, 1931*

Description	Sheets	Pounds	Cost
Paper and envelopes:			
Printing.....	16, 076, 000		\$119, 600. 94
Do.....		1, 426, 000	55, 904. 50
Mimeograph.....	9, 513, 000		44, 822. 22
United States money-order writing.....		107, 000	1, 227. 64
Safety writing.....	145, 000		982. 28
Writing.....	6, 823, 000		40, 012. 40
Do.....		315, 000	16, 020. 86
Map.....	730, 000		14, 680. 78
Manifold.....	6, 524, 000		38, 573. 04
Bond.....	18, 327, 000		164, 862. 40
Ledger.....	4, 057, 000		72, 958. 80
Index.....	932, 000		30, 652. 46
Cover.....	1, 453, 000		21, 219. 27
Manila.....	1, 379, 000		4, 940. 00
Do.....		238, 000	11, 568. 00
Kraft.....	1, 450, 000		7, 829. 20
Do.....		126, 000	3, 868. 20
Manila tag board.....	409, 000		6, 903. 00
Do.....		322, 000	33, 575. 00
Cardboard.....	214, 000		5, 360. 60
Bristol board.....	498, 000		3, 983. 00
Do.....		699, 000	28, 798. 70
Miscellaneous.....	870, 000		10, 141. 75
Do.....		20, 000	2, 185. 10
Binders board.....		614, 600	17, 182. 40
Envelopes.....			21, 949. 01
Total paper and envelopes.....			779, 806. 55
Other material and supplies:			
Miscellaneous supplies.....			237, 447. 61
Book cloth.....			16, 585. 11
Ink ingredients.....			8, 842. 49
Ink (made in Government Printing Office).....			3, 513. 67
Leather.....			10, 233. 07
Total, material and supplies.....			276, 621. 95
Total, material and supplies, paper and envelopes.....			1, 056, 428. 50
Machinery and equipment.....			4, 853, 892. 10
Grand total.....			5, 910, 320. 60

TABLE 9.—*Publications, including annual reports and documents, printed on requisition during the fiscal year ended June 30, 1931, for Congress and Government departments and independent establishments*

	Copies
Congress (does not include Congressional Record, bills, or private orders).....	5,969,784
Agriculture.....	29,866,506
Commerce.....	11,319,540
War.....	9,851,411
Superintendent of Documents.....	9,757,162
State.....	963,309
Treasury.....	3,658,112
Navy.....	3,306,137
Interior.....	2,065,768
Justice.....	531,426
Post Office.....	1,564,349
Labor.....	1,854,971
Smithsonian Institution.....	153,280
Library of Congress.....	140,333
Executive Office.....	64,795
Pan American Union.....	188,861
Supreme Court:	
District of Columbia.....	674
United States.....	275
Court of Claims.....	6,758
Bureau of Efficiency.....	820
Federal Power Commission.....	3,668
Interstate Commerce Commission.....	2,074,368
Civil Service Commission.....	223,353
Geographic Board.....	13,802
General Accounting Office.....	13,526
Alien Property Custodian.....	1,826
District of Columbia.....	203,707
Employees' Compensation Commission.....	19,510
Veterans' Administration.....	91,844
Federal Board for Vocational Education.....	153,572
Federal Reserve Board.....	592,340
Federal Trade Commission.....	82,526
National Advisory Committee for Aeronautics.....	46,067
Panama Canal.....	8,828
Railroad Administration.....	1,020
Shipping Board.....	372,490
Tariff Commission.....	26,115
Board of Mediation.....	3,003
Bureau of the Budget.....	6,452
Public Buildings and Public Parks.....	537
Board of Tax Appeals.....	13,658
Pan American Sanitary Bureau.....	65,500
Federal Radio Commission.....	18,646
Inland Waterways Corporation.....	3,000
National Capital Park and Planning Commission.....	2,000
Federal Farm Board.....	2,767,754
Personnel Classification Board.....	2,000
National Commission on Law Observance and Enforcement.....	19,099
George Washington Bicentennial Commission.....	419,350
Court of Customs and Patent Appeals.....	3,750
Miscellaneous.....	7,154
Total.....	88,524,736

TABLE 10.—*Receipts from miscellaneous sales during the fiscal year ended June 30, 1931*

Condemned material, machinery, etc.....	\$248.05
Waste wood.....	773.62
Waste metal.....	4,696.02
Waste paper.....	34,091.07
Waste gold.....	1,146.81
Total.....	40,955.57

DIVISION OF TESTS AND TECHNICAL CONTROL
REPORT OF THE TECHNICAL DIRECTOR

REPORT OF THE TECHNICAL DIRECTOR

To the PUBLIC PRINTER:

The following is the report of the Division of Tests and Technical Control for the fiscal year ended June 30, 1931.

The total number of samples tested during the year was 8,050, a decrease of 4.4 per cent from the number tested last year. Following is a comparative tabulation of the materials tested during the fiscal years 1930 and 1931:

	1930	1931
Paper and envelopes.....	5,583	5,184
Textiles.....	700	869
Bookbinding leather.....	91	65
Metals.....	1,119	900
Glue.....	36	34
Ink making materials.....	214	249
Inks.....	86	48
Oils and greases.....	39	53
Gasoline.....	76	87
Chemicals.....	109	97
Miscellaneous.....	365	464
Total.....	8,418	8,050

Four hundred and twenty-five deliveries were rejected for non-compliance with specifications. Of these rejections, 334 were of paper and 62 of envelopes, the remainder being miscellaneous materials.

DETERMINATION OF PAPER ACIDITY

The cooperative research with the Bureau of Standards and the Bureau of Chemistry and Soils on methods of determination of pH values and total acidity in paper mentioned in last year's report has been continued.

Since the quantity of paper in the original samples covered by the preliminary report was found to be insufficient, a new set of samples consisting of 100 per cent rag ledger, 100 per cent rag machine-finish book, 50 per cent rag machine-finish book, sulphite bond, kraft wrapping, and newsprint was selected for study.

A progress report on the work presented at the meeting of the Technical Association of the Pulp and Paper Industry in Erie, Pa., in September, 1930, has been published in bulletin form. A conference with the cooperating laboratories is planned for the near future to determine the remaining phases to be covered. The study will be completed during the year.

DETERIORATION OF SULPHITE PAPERS

The question of comparative rates of deterioration of sulphite papers made from all bleached pulp and those containing varying percentages of unbleached pulp arose during the year with reference to a recommendation by this office to the Employing Bookbinders of America in connection with specifications for book end paper. Most authorities are of the opinion that sulphite papers containing unbleached pulp deteriorate more rapidly than those composed of bleached pulp, the comparative rate of deterioration being somewhat in proportion to the percentage of unbleached pulp. Some maintain, however, that both bleached and unbleached sulphite papers deteriorate at practically the same rate.

A search of the literature disclosed that practically no data are available covering this subject. A cooperative program was arranged with the Bureau of Standards, which has made several lots of sulphite paper containing varying percentages of bleached and unbleached pulps. The two laboratories are making a study by different methods, covering the rate of deterioration of the different samples under varying conditions of storage. Microscopical, physical, and chemical tests are being made periodically on each set of samples. This work will proceed until definite data are obtained on the samples stored under normal conditions.

KRAFT PAPER

The research on kraft paper mentioned in last year's report has been completed and published as Government Printing Office Technical Bulletin No. 12, *A Study of Methods of Evaluation of Kraft Paper*.

BINDERS BOARD

A study of binders board has been made in cooperation with the Employing Bookbinders of America to ascertain the quality of boards supplied to the bookbinding industry. Two sets of samples were obtained for test.

The first set was composed of samples secured in 1929 from seven manufacturers of binders board and also samples taken from deliveries to the Government Printing Office. The latter were purchased under specifications covering physical characteristics, such as size, weight, thickness, density, and bursting strength. This set comprised four samples of so-called "best quality" or tar board and 15 samples of No. 2 quality binders board, both sized and unsized, in Nos. 20, 25, 30, 35, and 40 boards, size 25 by 30 inches to a bundle of approximately 50 pounds.

The second set of samples was furnished in 1931 at the request of the research division of the Employing Bookbinders of America by seven manufacturers and were said to be duplicates of the samples which the Binders Board Manufacturers Association had tested at the Bureau of Standards. This set consisted of a total of 35 samples of commercial boards in Nos. 18, 20, 22, 25, and 30 boards, size 26 by 32 inches, to a bundle of approximately 50 pounds.

The second set of samples was tested for number of sheets to bundle, weight of bundle, density, thickness, bursting strength, and bending strength. A comparative study of the various tests is now being made.

The work so far indicates that in general the binders board supplied to the bookbinding industry is a variable material and that there is not a sufficient degree of uniformity in quality and particularly in conformance to dimensions.

A study is being made of a considerable number of other materials, including laminated board, wall board, special-process board, backing board, fiber case board, pasted chip board, and cornstalk board obtained from the manufacturers for this study. The samples have been tested for number of sheets to the bundle, weight of bundle, density, thickness, bursting strength, and bending strength.

TABULATING CARDS

The auxiliary attachment for printing colored identification stripes on tabulating cards, which was designed last year in the laboratory and built in the machine shop, was improved to provide a positive drive. This has eliminated the occasional slipping of the roller on the press, which caused unstriped sections on the cards.

Some difficulty was experienced with curling of the cards, due to the application of the colored stripes. The inks used at first were aqueous solutions of dyes and the curling was caused by the absorption of the water by the cards. Research was conducted to develop a formula for an ink which would not cause the cards to curl. After a number of experiments an ink was developed which contains no water. This ink has been in use for several months with satisfactory results. Any desired color stripes are now printed on tabulating cards manufactured by the Government Printing Office.

To insure that all tabulating cards are within the specified limits for thickness, a magnetic thickness gage has been installed on the new slitting machine. This gage not only records the thickness of the paper to the nearest one ten-thousandth inch, but stops the slitting machine whenever the paper is above or below the specified range of thickness.

ENVELOPES

The experience of the Government Printing Office during the past few years in the purchase and use of kraft envelopes indicates that the quality of No. 2 kraft paper would meet the ordinary requirements of the Government service. Recommendation was therefore made to the Joint Committee on Printing that the specifications for kraft envelopes be changed to provide for No. 2 instead of No. 1 quality kraft. No trouble has been experienced with the envelopes furnished under the changed specifications.

Envelopes purchased by the office during the year totaled 52,245,560, an increase of 1,049,471, or 2 per cent over last year. Of these 6,496,060 were rejected. The rejections amounted to 12.4 per cent as compared with 16.3 per cent last year.

Seventy-eight per cent of the total number of envelopes rejected were included in 17 rejections. These rejections were mainly on

kraft envelopes for deficiency in folding endurance, and on white sulphite writing envelopes for nonconformance to the standard sample in color.

The four largest rejections covered 2,880,000 envelopes. These rejections, together with a number of others involving smaller quantities, were made on deliveries received before March 1, 1931, under specifications calling for No. 1 kraft. There were no rejections of kraft envelopes on deliveries after March 1, when the specifications required No. 2 kraft.

Almost 1,000,000 white sulphite writing envelopes were rejected due to their being off color.

GLUCOSE-GLYCOL PASTE

The glucose-glycol paste which was developed in the Government Printing Office and mentioned in last year's report, has been used throughout the year. This paste has been found to eliminate the warping of book covers provided the covers are flat at the start. Over 20,000 pounds was used by the Bindery Division during the year.

When used on flexible jobs, considerable improvement was noticed. It sticks to imitation leather much better than ordinary flour paste, and no preliminary washing or sizing of the leather is required.

Similar reports have been received from members of the Employing Bookbinders of America, and at least one paste manufacturer had added it to his list of products.

BRONZE STAMPING LEAF

The study of bronze flat and roll leaf described in the Annual Report for the fiscal year 1927 has been completed in cooperation with the Employing Bookbinders of America under the research associate plan.

Stampings of numerous samples of bronze leaf were exposed to low concentration of hydrogen-sulphide gas to direct sunlight and to indirect light. The results checked those obtained and reported in 1927, but corroborative data were obtained and the most satisfactory concentration of gas was determined.

Any of the three methods of testing gave results indicative of the service which may be expected of bronze leaf and checked well with each other. The hydrogen-sulphide test was completed in 17 hours. The sunlight-exposure test was continued for 16 weeks. Some of the test samples in this test tarnished in less than 2 weeks, while others remained untarnished during the entire test period. The samples exposed to indirect light tarnished the slowest. The poorest samples tarnished within 13 weeks, while the majority of the samples were still in good shape after 1 year.

It was shown that, in general, bronze roll leaf is not equal to flat leaf in resistance to tarnishing, and that the protective coating on the bronze leaf is the determining factor in the corrosion resistance of the stamped work.

Considerable interest in the work has been expressed by manufacturers of bronze leaf, all of whom have given hearty cooperation.

Judging from the number of requests received from manufacturers for tests, it is evident that they are taking steps to improve their products. A preliminary report on the work has been made to the research division of the Employing Bookbinders of America, and a complete report is in preparation.

Work has been started on a representative set of samples of book cloth submitted by nearly all manufacturers of this material. The information obtained from these tests is to be used as a basis for standard specifications covering the physical qualities of as many grades as found necessary.

TYPE METALS

During the fiscal year 1931 a total of 8,074,342 pounds of type metals was standardized for the use of the office, a decrease of 661,765 pounds, or 7.6 per cent less than in the fiscal year 1930.

A comparison of the amounts of the various alloys standardized during the fiscal years 1930 and 1931 are given below:

Kind of metal	1930	1931	Decrease	Decrease
	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Per cent</i>
Linotype.....	5,719,035	5,666,170	52,865	0.92
Monotype.....	2,461,059	1,963,305	497,754	20.23
Stereotype.....	489,118	442,665	46,453	9.50
Electrotype.....	66,895	12,202	64,693	96.71
Total.....	8,736,107	8,074,342	661,765	7.6

¹ Practically all the electrotype metal used during the year was obtained in exchange for old electrotype plates.

Following is a detailed tabulation showing the correction of linotype, monotype, stereotype, and electrotype metals for the fiscal year 1931, including the quantity returned for remelting, correction metals, dross, percentage increase due to correction, and percentage loss due to dross, calculated on the quantity of metal remelted:

	Linotype	Monotype	Stereotype	Electrotype
Returned for remelting.....pounds..	5,594,372	1,972,862	421,825	1,775
Correction metal used:				
Lead-antimony alloy ¹do....	10,620	3,655	910	---
Tin-antimony alloy ²do....	15	20,710	120	20
Tin.....do....	35	2,770	80	42
Lead.....do....	81,705	265	21,255	375
Total, correction metal used.....do....	92,375	27,400	22,365	437
Total corrected metal.....do....	5,666,170	1,963,305	442,665	2,202
Dross.....do....	20,577	36,957	1,525	10
Increase due to correction.....per cent..	1.65	1.39	5.3	24.61
Dross.....do....	.37	1.87	.36	.56

¹ Lead-antimony alloy consists of approximately 60 per cent lead and 40 per cent antimony.

² Tin-antimony alloy consists of approximately 33 per cent tin and 67 per cent antimony.

The percentages of dross in linotype and monotype metals were 0.37 and 1.87, respectively, as compared with 0.48 and 1.74 last year.

Fifteen thousand five hundred pounds of linotype metal and 200,000 pounds of electrotype metal were obtained during the year

in exchange for old electrotpe plates. An even exchange was made possible by the high tin content of the backing metal on the old plates.

Standardization of linotype metal to the formula 4-4.5 per cent tin, 11.5 per cent antimony, remainder lead, has been continued. No trouble with the metal has been reported.

Two thousand two hundred and fifty pounds of metal containing 6.5 per cent tin and 11.5 per cent antimony was made and given practical test on the Ludlow machines. It was reported to be an improvement over the standard linotype metal in that it produced sharper type faces and fewer pits on the rules.

A further reduction in increase of linotype metal due to correction alloys added, from 1.90 per cent for the fiscal year 1930 to 1.65 per cent for the fiscal year 1931, indicates that most of the linotype metal in the office has passed through the standardization process. It was found necessary to convert 11,750 pounds of monotype metal to linotype metal, due to the increased demand for the latter.

STANDARDIZATION OF MONOTYPE METAL

The standardization of monotype metal to the formula 7.3 per cent tin, 16.8 per cent antimony, remainder lead, also proceeded without complaint attributable to the quality of the metal.

Seventy-two thousand three hundred and forty-three pounds of special metal consisting of 10 per cent tin, 19 per cent antimony, remainder lead, which was manufactured for use in casting large type and rules, proved satisfactory in service.

As reported last year, stereotype metal has been standardized to the formula 6.5-7 per cent tin, 13 per cent antimony, remainder lead. All stereotype metal used during the past fiscal year has been standardized to this formula. The results obtained with it are fully equal to expectations. No difficulties have been experienced with it either in the casting by means of a pump or by hand loading. The plates have given satisfactory service on the presses.

STUDY OF BISMUTH IN TYPE METAL

A study of the effect of small quantities of bismuth in type metal has been started and some results obtained on stereotype metal. Additions of 1, 2, and 4 per cent of bismuth were made to metal of the Government Printing Office standard stereotype-metal formula. A few flat and curved stereotype plates were cast from these metals and compared, at the start and finish of the press runs, with plates on the same jobs cast from standard metal.

No difference, either in appearance or wearing quality of the plates, could be detected in the case of the 1 per cent bismuth addition. In the case of the 2 per cent bismuth additions the plates were slightly brighter, a quality which is of some assistance in examining the type faces for defects. Only those plates with 4 per cent bismuth additions were run on the press until worn out. They were removed after 60,000 impressions at the same time as similar plates containing no bismuth.

The bismuth additions did not affect casting temperatures to an appreciable extent. A comparison of the plates containing bismuth

with the control plates without bismuth showed no difference in sharpness of detail of type faces either before or after the plates were used.

Bismuth in the percentages tested is neither beneficial nor detrimental to stereotype metal.

The test plates were poured by hand ladle, so that effect of the bismuth on pump mechanisms was not determined. However, there is no reason to suspect any difficulty in this respect.

Data on the test runs are given in the following table:

Kind of metal	Number of impressions	Kind of paper	Type of plate
Stereotype plus, 1 per cent bismuth.....	12, 500	30 per cent rag bond.....	Flat.
Stereotype plus, 2 per cent bismuth.....	22, 500	M. F. book.....	Do.
Stereotype plus, 4 per cent bismuth.....	37, 500	Newsprint.....	Curved.
	60, 000	do.....	Do.

The formula 4 per cent tin, 3.5 per cent antimony, 92.5 per cent lead was adopted as the standard for electrotype backing metal by the International Association of Electrotypers in 1930 and has been approved by the American Newspaper Publishers Association and American Association of Advertising Agencies.

This formula is practically identical with that previously adopted by the Government Printing Office.

The new electrotyping equipment mentioned in last year's report has been installed and put into operation in the Platemaking Division, replacing the old depositing equipment. The new equipment consists of the following:

Two 7,500-ampere, 8-volt generators; 2 rubber-lined, semi-automatic copper-depositing tanks of approximately 1,200 gallons capacity each; 3 rubber-lined depositing tanks of approximately 250 gallons capacity each, 2 for nickel solutions and 1 for a copper "starting" tank.

COPPER ELECTROTYPING

The graphited wax cases are "oxidized," placed in the "starting" tank where they cover in from two to five minutes. They are then removed, inspected, and placed on a conveyor hook in one of the copper-depositing tanks, where they make one circuit of the tank in 65 minutes. Copper is deposited at a current density of 110-140 amperes per square foot at 6 volts.

The copper solutions are analyzed twice each week, and are adjusted to the following formula:

	Grams per liter
Copper sulphate.....	210
Sulphuric acid.....	75

The temperature of the solution is automatically maintained at 85° F. and no addition agents are used. The resultant copper shells have an average thickness of 0.006 inch as measured by a micrometer. A shell is now produced in 70 minutes as compared with 120 minutes under the old system. An even flow of work is maintained as the tanks have a combined capacity of two shells per minute, delivering

them at approximately 30-second intervals. The new tanks have a potential capacity of approximately 50 per cent more cases daily than the small tanks formerly used.

NICKEL ELECTROTYPING

The two tanks used for nickel deposition are arranged so that each tank may operate at two different voltages, thus allowing plating work to be done at four different voltages at the same time if necessary.

Solutions composed of 7 ounces of double nickel salts per gallon were found to be more conducting than the 3 ounces per gallon solution formerly used. Covering of wax cases proceeds more rapidly and after covering the current density is approximately double that obtained in the less concentrated solution. This permits a shortening of the deposition time on nickel work by 25 to 30 per cent.

CHROMIUM ELECTROTYPING

Two tanks, each having a capacity of approximately 50 gallons, were placed in service for chromium plating. The chromium-plating equipment was moved to the new plating room and a 12-18-volt generator was installed in the generator room. New control equipment was added, and plating on both flat and curved copper electrotypes is being done without difficulty. New holders were designed for the plates which also improved the quality of the work. A record is now being kept of the comparative number of impressions obtained on copper and chromium-plated copper electrotypes in such cases where the length of run makes such information possible.

Difficulty has been experienced in chromium plating nickel type surfaces. The trouble was apparent only on the nickel which had been deposited on the wax. There is not sufficient data available to indicate whether or not such electrotypes will yield sufficiently longer runs on copper electrotypes to warrant their additional cost. Further work will be done to permit uniform results to be obtained in case the use of these electrotypes becomes desirable later.

STUDY OF ELECTROTYPING PROBLEMS

Complete experimental equipment for the electrodeposition of metals consisting of a 6-volt, 500-ampere-12-volt, 250-ampere generator, three 50-gallon stoneware tanks, and an electrolytic cleaning tank has been installed in the new laboratory. This equipment will be used in research on electrotyping work. The studies of the various solutions can be conducted under controlled conditions without interfering with production in the electrotyping section.

Specifications for dry polishing graphite have been added to those for wet leading. Deliveries of molding and wet graphite purchased under these specifications are more uniform and of better quality than the materials formerly purchased on sample.

Tentative specifications were developed for cherry blocking wood used in mounting halftones. The wood purchased under these specifications has given good satisfaction and the trouble caused by warping of the blocks greatly reduced.

During a study of the value of phenolsulphonic acid as an addition agent in copper electrotyping solutions, the question was raised as to the relative thickness of the copper deposited on the face and back of the shell in such solutions compared with the thicknesses deposited in solutions using glue as an addition agent.

Several sets of shells were made and backed up, after which cross-sections were cut and mounted for study. Deposition of copper on the two sets of shells was made for the same length of time in order to obtain comparative thicknesses of the two sets, as well as information on the relative thickness of the copper at different parts of the same shell. The thickness of the copper shells was measured at a number of places by means of a microscope. The specimens were then photographed through the microscope in order to obtain a visual record of the sections measured.

It was found that the copper on the printing surfaces of the shells deposited in the solution using phenolsulphonic acid was 42.6 per cent thicker than on those where glue was used. The ratio of the thickness of the copper on the printing face to that on the back was 1 to 2 in the shell from the solution using phenolsulphonic acid and 1 to 1.8 in the shell from the solution in which glue was used.

WORK ON PHOTO-ENGRAVING SUPPLIES

Some work has been done on photo-engraving supplies, a number of which have proved troublesome, due either to varying quality or rapid deterioration. There is a definite need for standardization of these materials, since consistently good results and maximum production can not be obtained if raw materials of varying quality are used.

Photo-engravers' glue, which has been troublesome in the past, due mainly to difference in the products of various manufacturers, was one of the first materials studied. Specifications were drawn to cover the quality found most satisfactory by practical test, and all the photo-engravers' glue used during the year was purchased under these specifications. This does not mean that good results can not be obtained with other glues which do not comply with these specifications, but uniformly good results can not be expected from operators when they must change their procedure every few weeks to conform to a change in the raw materials. Therefore, in order to eliminate one of the variables in photo-engraving work, the operators are given a uniform product which they report as giving entire satisfaction.

Rubber solution, except a small amount purchased for a special purpose, was formerly made in the photo-engraving section from rubber and suitable solvent. It was found more economical and to yield more uniform results to replace both solutions with one purchased on definite specifications covering the quality of the rubber and the solvent as well as the concentration of rubber. The use of this solution has saved considerable time formerly spent in cutting rubber and stirring and straining the solution.

Several experimental lots of staging solution have been prepared in the laboratory and submitted to the re-etchers for practical test. All were reported as being satisfactory for halftone staging work.

A considerable amount of trouble was experienced with the developer used in line work, due to variations in the quality of deliveries from different sources. It was found more satisfactory to make the developer in this office than to purchase it from different sources, since it is difficult to specify the exact qualities desired. As a result of a study covering some months a formula was worked out for a satisfactory developer which is now being made in the laboratory at a considerable reduction in cost. The difference in cost, however, is merely incidental, since the uniform results now being obtained are of much more value.

The cold top enamel, also used in line work, has given but little trouble since there are fewer sources of supply. However, varying procedures are required by different brands, adding another variable to photo-engraving work. Research is now being conducted to develop a satisfactory formula for this material, but the work has not progressed to the point where a definite recommendation can be made.

PROBLEM OF "DRAGON'S BLOOD"

Another of the variables in photo-engraving work is "dragon's blood," a resinous compound used in line work. There are a number of brands on the market having widely varying characteristics. Some operators prefer one brand, some another, while others insist on mixing brands. The principal difficulty seems to lie in variations in working qualities, almost always between different brands, and occasionally between different deliveries of the same brand.

As in the case of glue, practical tests are being made to determine the qualities desired by the operators. This is being paralleled by a study of the material in the laboratory to determine the essential characteristics which must be specified in order to insure the delivery of uniform material of the quality desired.

This work has been handicapped by a lack of information on the subject. Practically no technical data were available, which necessitated a considerable amount of preliminary laboratory work. It is hoped that this problem will be solved satisfactorily during the coming year.

Specifications have been developed for use in the purchase of colodion, and satisfactory deliveries are being received.

Work on the iodizer has not yet advanced to the stage where specifications can be drawn.

COPPER AND ZINC PLATES

The polished copper sheets used in making halftones have caused no trouble, and have been tested occasionally only for hardness and thickness.

The zinc sheets used in line work, however, have been unsatisfactory in some instances, and work has been started to ascertain those factors which must be specified to insure the delivery of satisfactory material. A number of chemical analyses have been made, but the difference in composition of good and bad plates was found to be apparently not the sole cause of the trouble experienced. A microscopical study of the structure of different makes of plates is now under way, in hopes that it will cast further light on the subject.

A comparative study was made of the electric and the ferric chloride etching processes. Photomicrographs were made of the surfaces and also of polished cross sections of halftones made by both methods. A study of these photographs showed that the electric etching process was satisfactory for deep etching, but for fine work the ferric chloride process was more desirable. The specimens and their accompanying photomicrographs are now in the division exhibit in Harding Hall.

PRODUCTION OF PRINTING INKS

The production of printing inks for the fiscal year 1931 was 185,885 pounds, an increase of 7,628 pounds over 1930. There were also produced 12,609 pounds of blue toner used in printing inks, 482 gallons of ruling inks, 3,600 gallons of blue and red writing inks, 68 gallons of backing fluid, and 201 quarts of mucilage.

The standardization of the inks used by the office has been continued during the year. The formulas for red, green, black, and blue numbering-machine inks have been simplified and improved. Formulas have been developed for marble paper ink for offset printing, and for a number of inks requested by the Post Office Department.

NEWS INK AND NEWSPRINT PAPER

Research on newsprint paper and news ink, conducted in cooperation with the mechanical department of the American Newspaper Publishers Association, was continued during the year. A second progress report was presented at the fifth mechanical conference of the association, which was held in Harding Hall, Government Printing Office, June 1, 2, and 3, 1931.

Through the courtesy of Dr. George K. Burgess, Director of the Bureau of Standards, the paper section of the bureau made one roll each of several special newsprint papers for study in this work. The composition of these papers ranged from 100 per cent ground wood, through ground wood and unbleached sulphite mixtures in the following proportions: 80:20, 60:40, and 40:60, and similar mixtures of ground wood and bleached sulphite.

The following points were studied during the year: Strike through, show through, offset, carbon black and lamp black, grinding, factors influencing printing qualities of newsprint paper, measurement of paper surface, and the effect of variation of percentages of sulphite pulp in newsprint papers. A full report of the work done during the year has been published as Government Printing Office Technical Bulletin No. 13. Manufacturers of newsprint and news inks and members of the American Newspaper Publishers Association have made numerous requests for this bulletin.

PRESS ROLLERS AND MOLDED GLUES

A total of 2,698 press rollers was manufactured during the year as compared with 2,325 for 1930, an increase of 373 rollers, or 16 per cent. One hundred and forty-seven of these were made for other Government departments, as compared with less than 100 last year.

A total of 83,957 pounds of molded glue was manufactured during the fiscal year 1931.

The satisfactory service rendered by the press rollers and the molded glue required no research on these subjects during the year. Work is planned to ascertain whether the change in rollers during the "seasoning" process is merely an adjustment of the moisture content or whether some change takes place in the structure of the material. This study will be made under different conditions of relative humidity and temperature to determine the effect of these factors on "seasoning."

DETERGENTS

Research was conducted to find a suitable solvent for use in the form-washing machine in the main press room. A satisfactory mixture now in use consists of 20 pounds of crystalline sodium metasilicate in 50 gallons of water.

Work has been started to develop a noninflammable, nontoxic ink solvent which will be as effective as the benzol acetone mixture now used for removing dried and hardened printing ink. A mixture of equal parts of dichlorethylene and acetone, while inflammable, is not as toxic as the old mixture, and gives equally good results. Further work is planned on this problem.

CARBON BRUSHES FOR ELECTRIC MOTORS

Due to the variety of kinds and sizes of the 1,500 motors in the office, a large number of carbon brushes must be kept in stock. No standard specifications were used in the purchase of these brushes, resulting in a wide variation in quality between different deliveries. A study of this problem is being conducted at the request of the Division of Construction and Maintenance, and specifications have been developed for each kind of brushes as fast as new purchases were necessary.

The purchase of brushes on specifications has resulted in the delivery of uniform high-grade material. It is expected that this work will be completed during the coming year.

SUPPLIES FURNISHED GOVERNMENT AGENCIES

Miscellaneous supplies manufactured by the Government Printing Office were furnished other Government agencies as in the previous three years.

The total charge for supplies this year was \$28,357, as compared with \$24,000 last year. The estimated savings to the departments for the year was approximately \$28,000.

The following tabulation gives a comparison of the amounts of the different materials furnished the Government agencies during the fiscal years 1930 and 1931:

	1930	1931
	<i>Pounds</i>	<i>Pounds</i>
Mimeograph ink, black.....	29, 581	40, 097
Printing inks, black and colored (including multigraph).....	4, 649	4, 751
Addressograph ink, blue and black.....	256	209
Writing ink, blue, black, and red.....	¹ 12, 482	¹ 12, 747
Stamp pad and numbering machine inks.....	1, 158	2, 084
Molded glue, including canceling stamp composition for the Post Office Department.....	2, 843	2, 745
Paste.....	16, 201	12, 492

¹ Quarts.

As in past years, the Division of Tests and Technical Control has upon request rendered assistance to the Navy Department, Treasury Department, Post Office Department, and other Government agencies on problems pertaining to paper, ink, glues, tabulating cards, etc.

NEW LABORATORY AND EQUIPMENT

The laboratory, ink section, and roller and glue section were moved to their new location on the fifth floor of the G Street extension during the last few months of the fiscal year.

As stated in last year's report, the new laboratory provides separate rooms for microscopical work, chemical paper analysis, physical paper testing, textile testing, photomicrographic work, metal analysis, ink analysis, general research, and also ample office space, as well as library, conference, and file rooms.

A room has been fitted for experimental electrotyping where research on electrotyping can be conducted without interfering with production.

Considerable new apparatus and equipment was purchased for the laboratory to meet the requirements for chemical analysis and testing. The new laboratory is without a doubt the most modern and completely equipped laboratory in the world devoted solely to research and technical control in the printing and binding industry.

In order to increase production and efficiency in the ink section new equipment was purchased, among which are the following:

One high-speed 4-roll ink mill, one 6-head filling machine, one semi-automatic labeling machine, one 1,200-gallon tank for rewashing cans and tubs, seven steel varnish storage tanks, two portable glass-lined tanks, one single-shell glass-lined mixer, one jacketed glass-lined mixer, and two 350-gallon blending tanks.

The humidifier formerly used in the book section of the main pressroom has been installed in the roller storage room to increase the relative humidity during the winter months. Since the roller-storage room requires but a part of the capacity of this machine, arrangements are being made to also connect it to the map section of the bindery, which adjoins the roller-storage room.

A new agitator has been purchased for use in the glue cooker and will be installed in the near future.

An additional roller gun has been ordered from the Navy Department.

PUBLICATIONS

During the year the following articles prepared by this division have been published by the office as technical bulletins and reprinted in various trade journals:

Progress Report on the Determination of pH Values and Total Acidity in Papers, Technical Bulletin No. 11.

A Study of Methods of Evaluation of Kraft Paper, Technical Bulletin 12.

Second Progress Report on Study of News Ink and Newsprint, Technical Bulletin No. 13.

The Research and Standardization Work of the Government Printing Office.

The Technical Director delivered an address on paper standardization at the meeting of the Printing House Craftsmen of York and York County, Pa. One of the chemists also delivered an address on the same subject at the annual meeting of the National Association of Purchasing Agents at Toronto, Canada. The latter has been reprinted in various trade journals.

CORRESPONDENCE

Inquiries for technical information have been more numerous than in past years. The policy adopted last year of issuing technical bulletins on the different phases of the work has simplified our correspondence somewhat, since in many cases a bulletin can be sent instead of a long letter. Requests for bulletins and other information have been received from many foreign countries as well as from all parts of the United States.

TECHNICAL CONFERENCES

The following technical conferences were held in Harding Hall of the Government Printing Office:

Second Technical Conference of the Printing Industry sponsored by the Printing Industries Division of the American Society of Mechanical Engineers, March 16 and 17, 1931.

Mechanical Department of the American Newspaper Publishers Association, June 1, 2, and 3, 1931.

The members of the Division of Tests and Technical Control staff aided in both conferences, and attended many of the group meetings.

COMMITTEE MEMBERSHIP

The Technical Director is a member of the paper specifications committee of the Joint Committee on Printing, Federal Specifications Board, the pulp and paper committee of the Printing Industries Division of the American Society of Mechanical Engineers, the paper testing committee and chairman of the subcommittee on ink resistance of printing papers of the Technical Association of the Pulp and Paper Industry, the Standards Council of the American Standards Association, the advisory committee on lithograph papers for the Lithographic Technical Foundation, and the advisory committee on permanent papers for the National Research Council.

Respectfully submitted.

B. L. WEHMHOFF,
Technical Director.



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